\\USER\Feinberglab\Tanja\GRASE_VASO_InnerVolume_20170615\BP_grase_clean_VASO_V04_pF58_V250_TA: 0:50 PAT: Off Voxel size: 0.8×0.8×0.8 mm Rel. SNR: 1.00 USER: BP_grase_clean_VASO_V04

Proportion		Pause after meas. 19	0.0 s
Properties Prio Recon	Off	Multiple series	Off
Before measurement	Oli	Resolution	
After measurement		Base resolution	162
Load to viewer	On	Phase resolution	100 %
Inline movie	Off	Slice resolution	100 %
Auto store images	On	Slice partial Fourier	5/8
Load to stamp segments	Off	Interpolation	Off
Load images to graphic	Off		
segments		PAT mode	None
Auto open inline display	Off	Prescan Normalize	Off
Start measurement without	On	Raw filter	Off
further preparation			.
Wait for user to start	Off	Geometry	
Start measurements	single	Series	Interleaved
Routine	_	Sat. region 1	
		Thickness	40 mm
Slab group 1 Slabs	1	Position	R2.7 P42.1 H0.0
Dist. factor	0 %	Orientation	Coronal
Position	R4.3 P42.1 F33.7	Special sat.	None
Orientation	Transversal		11
Phase enc. dir.	A >> P	Table position	H
Rotation	0.00 deg	Table position	0 mm
Phase oversampling	0.00 deg 0 %	Inline Composing	Off
Slice oversampling	0.0 %	System	
Slices per slab	8	T1	On
FoV read	130 mm	M2	On
FoV phase	30.9 %	B4	On
Slice thickness	0.8 mm	M3	On
TR	2500 ms	V32	Off
TE	59.78 ms	Positioning mode	REF
Averages	1	MSMA	S - C - T
Concatenations	1	Sagittal	R >> L
Filter	None	Coronal	A >> P
Coil elements	B4;M2,3;T1	Transversal	F >> H
Contract		Save uncombined	Off
Contrast	Non-sel. IR	Coil Combine Mode	Adaptive Combine
Magn. preparation	1400 ms	AutoAlign	
Flip angle	180 deg	Auto Coil Select	Default
Fat suppr.	Fat sat.		
Fat sat. mode	Strong	Shim mode	Standard
		Adjust with body coil	Off
Averaging mode	Long term	Confirm freq. adjustment	Off
Reconstruction	Magnitude	Assume Silicone	Off
Measurements	20	! Ref. amplitude 1H Adjustment Tolerance	250.000 V Auto
Pause after meas. 1	0.0 s	Adjust volume	Auto
Pause after meas. 2	0.0 s	Position	R4.3 P42.1 F33.7
Pause after meas. 3	0.0 s	Orientation	Transversal
Pause after meas. 4	0.0 s	Rotation	0.00 deg
Pause after meas. 5 Pause after meas. 6	0.0 s 0.0 s	R >> L	130 mm
Pause after meas. 7	0.0 s	A >> P	41 mm
Pause after meas. 8	0.0 s	F >> H	7 mm
Pause after meas. 9	0.0 s	I	
Pause after meas. 10	0.0 s	Physio	Naga
Pause after meas. 11	0.0 s	1st Signal/Mode	None
Pause after meas. 12	0.0 s	Composing	
Pause after meas. 13	0.0 s		
Pause after meas. 14	0.0 s	Sequence	0"
Pause after meas. 15	0.0 s	Introduction	Off
Pause after meas. 16	0.0 s	Dimension	3D Contrin
Pause after meas. 17	0.0 s	Reordering	Centric
Pause after meas. 18	0.0 s	Contrasts	1
•			

Bandwidth	1144 Hz/Px
Echo spacing	1 ms
Turbo factor	5
EPI factor	50
RF pulse type	Normal
Gradient mode	Fast*
flip angle excit	90
phase encoding	ON
Maxwell compensation	Off
ICE program	single
prepscans	0

\\USER\Feinberglab\Tanja\GRASE_VASO_InnerVolume_20170615\BP_grase_clean_VASO_V04_pF58_V250_TA: 0:50 PAT: Off Voxel size: 0.8×0.8×0.8 mm Rel. SNR: 1.00 USER: BP_grase_clean_VASO_V04

Properties		Pause after meas. 19	0.0 s
Prio Recon	Off	—— Multiple series	Off
	Oii	Resolution	
Before measurement		Base resolution	162
After measurement Load to viewer	On		100 %
	On O#	Phase resolution	
Inline movie	Off	Slice resolution	100 %
Auto store images	On O"	Slice partial Fourier	5/8
Load to stamp segments	Off	Interpolation	Off
Load images to graphic	Off	PAT mode	None
segments			
Auto open inline display	Off	Prescan Normalize	Off
Start measurement without	On	Raw filter	Off
further preparation		Geometry	
Wait for user to start	Off	Series	Interleaved
Start measurements	single		
Routine		Sat. region 1	
Slab group 1		Thickness	40 mm
Slabs	1	Position	R2.7 P42.1 H0.0
Dist. factor	0 %	Orientation	Coronal
Position	R4.3 P42.1 F33.7	Special sat.	None
Orientation	Transversal		
Phase enc. dir.	A >> P	Table position	H
		Table position	0 mm
Rotation	0.00 deg	Inline Composing	Off
Phase oversampling	0 %	System	
Slice oversampling	0.0 %	T1	On
Slices per slab	8	M2	On
FoV read	130 mm	B4	On
FoV phase	30.9 %	M3	On
Slice thickness	0.8 mm	V32	Off
TR	2500 ms	V32	OII
TE	59.78 ms	Positioning mode	REF
Averages	1	MSMA	S - C - T
Concatenations	1	Sagittal	R >> L
Filter	None	Coronal	A >> P
Coil elements	B4;M2,3;T1	Transversal	F >> H
Contrast		Save uncombined	Off
Magn. preparation	Non-sel. IR	Coil Combine Mode	Adaptive Combine
TI	1200 ms	AutoAlign	
		Auto Coil Select	Default
Flip angle	180 deg		
Fat suppr.	Fat sat.	Shim mode	Standard
Fat sat. mode	Strong	Adjust with body coil	Off
Averaging mode	Long term	Confirm freq. adjustment	Off
Reconstruction	Magnitude	Assume Silicone	Off
Measurements	20	? Ref. amplitude 1H	0.000 V
Pause after meas. 1	0.0 s	Adjustment Tolerance	Auto
Pause after meas. 2	0.0 s	Adjust volume	
Pause after meas. 3	0.0 s	Position	R4.3 P42.1 F33.7
Pause after meas. 4	0.0 s	Orientation	Transversal
Pause after meas. 5	0.0 s	Rotation	0.00 deg
Pause after meas. 6	0.0 s	R >> L	130 mm
Pause after meas. 7	0.0 s	A >> P	41 mm
Pause after meas. 8	0.0 s 0.0 s	F >> H	7 mm
Pause after meas. 9	0.0 s 0.0 s	l	
Pause after meas. 10	0.0 s 0.0 s	Physio	
		1st Signal/Mode	None
Pause after meas. 11	0.0 s	Composing	
Pause after meas. 12	0.0 s	Composing	
Pause after meas. 13	0.0 s	Sequence	
Pause after meas. 14	0.0 s	Introduction	Off
Pause after meas. 15	0.0 s	Dimension	3D
Pause after meas. 16	0.0 s	Reordering	Centric
Pause after meas. 17	0.0 s	Contrasts	1
Pause after meas. 18	0.0 s	1	

Bandwidth Echo spacing	1144 Hz/Px 1 ms
Turbo factor	5
EPI factor	50
RF pulse type	Normal
Gradient mode	Fast*
flip angle excit	90
phase encoding	ON
Maxwell compensation	Off
ICE program	single
prepscans	0

\\USER\Feinberglab\Tanja\GRASE_VASO_InnerVolume_20170615\BP_grase_clean_VASO_V04_pF58_V250_TA: 0:50 PAT: Off Voxel size: 0.8×0.8×0.8 mm Rel. SNR: 1.00 USER: BP_grase_clean_VASO_V04

Proportion		Pause after meas. 19	0.0 s
Properties Prio Recon	Off	Multiple series	Off
Before measurement	Oil	Resolution	
After measurement		Base resolution	162
Load to viewer	On	Phase resolution	100 %
Inline movie	Off	Slice resolution	100 %
Auto store images	On	Slice partial Fourier	5/8
Load to stamp segments	Off	Interpolation	Off
Load images to graphic	Off		
segments		PAT mode	None
Auto open inline display	Off	Prescan Normalize	Off
Start measurement without	On	Raw filter	Off
further preparation			
Wait for user to start	Off	Geometry	late de sus d
Start measurements	single	Series	Interleaved
Routine		Sat. region 1	
Slab group 1	-	Thickness	40 mm
Slabs	1	Position	R2.7 P42.1 H0.0
Dist. factor	0 %	Orientation	Coronal
Position	R4.3 P42.1 F33.7	Special sat.	None
Orientation	Transversal	Table position	 Н
Phase enc. dir.	A >> P	Table position	П 0 mm
Rotation	0.00 deg	Inline Composing	Off
Phase oversampling	0 %	milite Composing	Oli
Slice oversampling	0.0 %	System	
Slices per slab	8	T1	On
FoV read	130 mm	M2	On
FoV phase	30.9 %	B4	On
Slice thickness	0.8 mm	M3	On
TR	2500 ms	V32	Off
TE	59.78 ms	Positioning mode	REF
Averages	1	MSMA	S - C - T
Concatenations	1	Sagittal	R >> L
Filter	None	Coronal	A >> P
Coil elements	B4;M2,3;T1	Transversal	F >> H
Contrast		Save uncombined	Off
Magn. preparation	Non-sel. IR	Coil Combine Mode	Adaptive Combine
TI	1600 ms	AutoAlign	
Flip angle	180 deg	Auto Coil Select	Default
Fat suppr.	Fat sat.		
Fat sat. mode	Strong	Shim mode	Standard
		Adjust with body coil	Off
Averaging mode	Long term	Confirm freq. adjustment	Off
Reconstruction	Magnitude	Assume Silicone	Off
Measurements	20	? Ref. amplitude 1H	0.000 V
Pause after meas. 1	0.0 s	Adjustment Tolerance Adjust volume	Auto
Pause after meas. 2	0.0 s	Position	R4.3 P42.1 F33.7
Pause after meas. 3	0.0 s	Orientation	Transversal
Pause after meas. 4	0.0 s	Rotation	0.00 deg
Pause after meas. 5 Pause after meas. 6	0.0 s	R >> L	130 mm
	0.0 s	A >> P	41 mm
Pause after meas. 7	0.0 s	F >> H	7 mm
Pause after meas. 8 Pause after meas. 9	0.0 s 0.0 s	1	
Pause after meas. 10	0.0 s	Physio	
Pause after meas. 11	0.0 s	1st Signal/Mode	None
Pause after meas. 12	0.0 s	Composing	
Pause after meas. 13	0.0 s		
Pause after meas. 14	0.0 s	Sequence	
Pause after meas. 15	0.0 s	Introduction	Off
Pause after meas. 16	0.0 s	Dimension	3D
Pause after meas. 17	0.0 s	Reordering	Centric
Pause after meas. 18	0.0 s	Contrasts	1
1			

Bandwidth	1144 Hz/Px
Echo spacing	1 ms
Turbo factor	5
EPI factor	50
RF pulse type	Normal
Gradient mode	Fast*
flip angle excit	90
phase encoding	ON
Maxwell compensation	Off
ICE program	single
prepscans	0

\\USER\Feinberglab\Tanja\GRASE_VASO_InnerVolume_20170615\BP_grase_clean_VASO_V04_pFoff_iPAT2
TA: 1:00 PAT: 2 Voxel size: 0.8×0.8×0.8 mm Rel. SNR: 1.00 USER: BP_grase_clean_VASO_V04

Properties		Pause after meas. 19	0.0 s
Properties Prio Recon	Off	Multiple series	Off
Before measurement	Oli	Resolution	
After measurement		Base resolution	162
Load to viewer	On	Phase resolution	100 %
Inline movie	Off	Slice resolution	100 %
			Off
Auto store images	On	Slice partial Fourier	
Load to stamp segments	Off	Interpolation	Off
Load images to graphic	Off	PAT mode	GRAPPA
segments	0"	Accel. factor PE	2
Auto open inline display	Off	Ref. lines PE	24
Start measurement without	On	Accel, factor 3D	1
further preparation	0.44	Ref. lines 3D	8
Wait for user to start	Off	Reference scan mode	Separate
Start measurements	single		
Routine		Prescan Normalize Raw filter	Off Off
Slab group 1		1 Naw Intel	
Slabs	1	Geometry	
Dist. factor	0 %	Series	Interleaved
Position	R4.3 P42.1 F33.7	Sat ragion 1	
Orientation	Transversal	Sat. region 1	40 mm
Phase enc. dir.	A >> P	Thickness Position	40 mm
Rotation	0.00 deg		R2.7 P42.1 H0.0
Phase oversampling	0 %	Orientation	Coronal
Slice oversampling	0.0 %	Special sat.	None
Slices per slab	8	Table position	Н
FoV read	130 mm	Table position	0 mm
FoV phase	30.9 %	Inline Composing	Off
Slice thickness	0.8 mm		
TR	2500 ms	System	
TE	36.88 ms	T1	On
Averages	1	M2	On
Concatenations	1	B4	On
Filter	None	M3	On
Coil elements	B4;M2,3;T1	V32	Off
Contrast	_ ·,···_,c,· ·	Positioning mode	FIX
	Non-sel. IR	MSMA	S - C - T
Magn. preparation		Sagittal	R >> L
TI .	1400 ms	Coronal	A >> P
Flip angle	180 deg	Transversal	F >> H
Fat suppr.	Fat sat.	Save uncombined	Off
Fat sat. mode	Strong	Coil Combine Mode	Adaptive Combine
Averaging mode	Long term	AutoAlign	Adaptive Combine
Reconstruction	Magnitude	Auto Coil Select	Default
Measurements	20	Auto Coli Select	Delauit
Pause after meas. 1	0.0 s	Shim mode	Standard
Pause after meas. 2	0.0 s	Adjust with body coil	Off
Pause after meas. 3	0.0 s	Confirm freq. adjustment	Off
Pause after meas. 4	0.0 s	Assume Silicone	Off
Pause after meas. 5	0.0 s	? Ref. amplitude 1H	0.000 V
Pause after meas. 6	0.0 s	Adjustment Tolerance	Auto
Pause after meas. 7	0.0 s	Adjust volume	-
Pause after meas. 8	0.0 s	Position	R4.3 P42.1 F33.7
Pause after meas. 9	0.0 s	Orientation	Transversal
Pause after meas. 9 Pause after meas. 10	0.0 s	Rotation	0.00 deg
Pause after meas. 10 Pause after meas. 11	0.0 s 0.0 s	R >> L	130 mm
		A >> P	41 mm
Pause after meas. 12	0.0 s	F >> H	7 mm
Pause after meas. 13	0.0 s		
Pause after meas. 14	0.0 s	Physio	
Pause after meas. 15	0.0 s	1st Signal/Mode	None
Pause after meas. 16	0.0 s		
Pause after meas. 17	0.0 s	Composing	
Pause after meas. 18	0.0 s		

Sequence

Introduction	Off
Dimension	3D
Reordering	Centric
Contrasts	1
Bandwidth	1144 Hz/Px
Echo spacing	1.1 ms
Turbo factor	8
EPI factor	50
RF pulse type	Normal
Gradient mode	Fast*
flip angle excit	90
phase encoding	ON
Maxwell compensation	Off
ICE program	single
prepscans	3
P. 0P0000	~

\\USER\Feinberglab\Tanja\GRASE_VASO_InnerVolume_20170615\BP_grase_clean_VASO_V04_pFoff_iPAT2
TA: 1:00 PAT: 2 Voxel size: 0.8×0.8×0.8 mm Rel. SNR: 1.00 USER: BP_grase_clean_VASO_V04

Dramantias		Pause after meas. 19	0.0 s
Properties		—— Multiple series	Off
Prio Recon	Off		
Before measurement		Resolution	100
After measurement	0	Base resolution	162
Load to viewer	On	Phase resolution	100 %
Inline movie	Off	Slice resolution	100 %
Auto store images	On	Slice partial Fourier	Off
Load to stamp segments	Off	Interpolation	Off
Load images to graphic	Off	PAT mode	GRAPPA
segments		Accel, factor PE	2
Auto open inline display	Off	Ref. lines PE	24
Start measurement without	On	Accel. factor 3D	1
further preparation			•
Wait for user to start	Off	Ref. lines 3D	8
Start measurements	single	Reference scan mode	Separate
Routine		Prescan Normalize	Off
Slab group 1		— Raw filter	Off
Slabs	1	Geometry	
Dist. factor	0 %	Series	Interleaved
Position	R4.3 A26.7 H40.5	061169	
Orientation	Transversal	Sat. region 1	
Phase enc. dir.	R >> L	Thickness	40 mm
Rotation		Position	R4.3 A26.7 H74.2
Phase oversampling	90.00 deg 0 %	Orientation	Sagittal
		Special sat.	None
Slice oversampling	0.0 %		
Slices per slab	8	Table position	Н
FoV read	130 mm	Table position	0 mm
FoV phase	30.9 %	Inline Composing	Off
Slice thickness	0.8 mm	System	
TR	2500 ms	T1	On
TE	36.88 ms		On On
Averages	1	M2	On
Concatenations	1	B4	On
Filter	None	M3	On O"
Coil elements	B4;M2,3;T1	V32	Off
Contrast		Positioning mode	FIX
Magn. preparation	Non-sel. IR	MSMA	S-C-T
TI	1400 ms	Sagittal	R >> L
Flip angle	180 dea	Coronal	A >> P
, ,	Fat sat.	Transversal	F >> H
Fat suppr. Fat sat. mode		Save uncombined	Off
Fat Sat. IIIUUE	Strong	Coil Combine Mode	Adaptive Combine
Averaging mode	Long term	AutoAlign	
Reconstruction	Magnitude	Auto Coil Select	Default
Measurements	20		
Pause after meas. 1	0.0 s	Shim mode	Standard
Pause after meas. 2	0.0 s	Adjust with body coil	Off
Pause after meas. 3	0.0 s	Confirm freq. adjustment	Off
Pause after meas. 4	0.0 s	Assume Silicone	Off
Pause after meas. 5	0.0 s	? Ref. amplitude 1H	0.000 V
Pause after meas. 6	0.0 s	Adjustment Tolerance	Auto
Pause after meas. 7	0.0 s 0.0 s	Adjust volume	
		Position	R4.3 A26.7 H40.5
Pause after meas. 8	0.0 s	Orientation	Transversal
Pause after meas. 9	0.0 s	Rotation	90.00 deg
Pause after meas. 10	0.0 s	A >> P	130 mm
Pause after meas. 11	0.0 s	R >> L	41 mm
Pause after meas. 12	0.0 s	F >> H	41 mm 7 mm
Pause after meas. 13	0.0 s	Г >> П	<i>t</i> (11111)
Pause after meas. 14	0.0 s	Physio	
Pause after meas. 15	0.0 s	1st Signal/Mode	None
Pause after meas. 16	0.0 s	•	
Pause after meas. 17	0.0 s	Composing	
Pause after meas. 18	0.0 s		

Sequence

Introduction	Off
Dimension	3D
Reordering	Centric
Contrasts	1
Bandwidth	1144 Hz/Px
Echo spacing	1.1 ms
Turbo factor	8
EPI factor	50
RF pulse type	Normal
Gradient mode	Fast*
flip angle excit	90
phase encoding	ON
Maxwell compensation	Off
ICE program	single
prepscans	3
P. 0P0000	~

\\USER\Feinberglab\Tanja\GRASE_VASO_InnerVolume_20170615\BP_grase_clean_VASO_V04_pF58_V250 TA: 0:50 PAT: Off Voxel size: 0.8×0.8×0.8 mm Rel. SNR: 1.00 USER: BP_grase_clean_VASO_V04 Pause after meas. 19 0.0 sProperties Multiple series Off Off Prio Recon Resolution Before measurement 162 After measurement Base resolution On 100 % Load to viewer Phase resolution Inline movie Off Slice resolution 100 % Auto store images On Slice partial Fourier 5/8 Interpolation Off Load to stamp segments Off Load images to graphic Off PAT mode None segments Off Auto open inline display Prescan Normalize Off Start measurement without On Raw filter Off further preparation Geometry Off Wait for user to start Series Interleaved Start measurements single Sat. region 1 Routine **Thickness** 40 mm Slab group 1 Position R4.3 A26.7 H74.2 Slabs 1 Orientation Sagittal Dist. factor 0 % Special sat. None Position R4.3 A26.7 H40.5 Orientation Transversal Table position Phase enc. dir. R >> L Table position 0 mm Rotation 90.00 deg Inline Composing Off Phase oversampling 0 % System 0.0 % Slice oversampling On Slices per slab M2 On FoV read 130 mm B4 On FoV phase 30.9 % М3 On Slice thickness 0.8 mm V32 Off TR 2500 ms TE 59.78 ms Positioning mode FIX **Averages MSMA** S-C-T Concatenations Sagittal R >> L Filter None Coronal A >> P Coil elements B4;M2,3;T1 Transversal F >> H Save uncombined Off Contrast Coil Combine Mode Adaptive Combine Magn. preparation Non-sel. IR AutoAlign 1400 ms Auto Coil Select Default Flip angle 180 deg Fat suppr. Fat sat. Shim mode Standard Fat sat. mode Strong Adjust with body coil Off Confirm freq. adjustment Off Averaging mode Long term Assume Silicone Off Reconstruction Magnitude ! Ref. amplitude 1H 250.000 V Measurements Adjustment Tolerance Auto 0.0 sPause after meas. 1 Adjust volume Pause after meas. 2 0.0 sR4.3 A26.7 H40.5 Position Pause after meas. 3 0.0 sOrientation Transversal Pause after meas. 4 0.0 sRotation 90.00 deg Pause after meas. 5 0.0 sA >> P 130 mm Pause after meas. 6 0.0 sR >> L 41 mm Pause after meas. 7 0.0 s7 mm F >> H Pause after meas. 8 0.0 sPause after meas. 9 0.0 sPause after meas. 10 0.0 s1st Signal/Mode None Pause after meas. 11 0.0 sComposing Pause after meas. 12 0.0 sPause after meas. 13 0.0 sSequence Pause after meas. 14 0.0 sIntroduction Off Pause after meas. 15 0.0 sDimension 3D 0.0 sPause after meas. 16 Reordering Centric

Contrasts

1

Pause after meas. 17

Pause after meas. 18

0.0 s

0.0 s

Bandwidth	1144 Hz/Px
Echo spacing	1 ms
Turbo factor	5
EPI factor	50
RF pulse type	Normal
Gradient mode	Fast*
flip angle excit phase encoding Maxwell compensation ICE program prepscans	90 ON Off single 0

\\USER\Feinberglab\Tanja\GRASE_VASO_InnerVolume_20170615\BP_grase_clean_VASO_V05 TA: 3.0 s PAT: Off Voxel size: 7.8×7.8×3.0 mm Rel. SNR: 1.00 USER: BP_grase_clean_VASO_V05

Properties		Special sat.	None
Properties Prio Popon	Off	Toble position	ш
Prio Recon	Off	Table position	H
Before measurement		Table position	0 mm
After measurement	_	Inline Composing	Off
Load to viewer	On	System	
Inline movie	Off	T1	On
Auto store images	On		_
Load to stamp segments	Off	M2	Off
Load images to graphic	Off	B4	Off
segments		M3	Off
Auto open inline display	Off	V32	Off
Start measurement without	On	Positioning mode	REF
further preparation	On	MSMA	S-C-T
Wait for user to start	Off		
Start measurements		Sagittal	R >> L
Start measurements	single	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
		Chira and a	Ctandard
Orientation	Transversal	Shim mode	Standard
Phase enc. dir.	A >> P	Adjust with body coil	Off
Rotation	0.00 deg	Confirm freq. adjustment	Off
Phase oversampling	0 %	Assume Silicone	Off
Slice oversampling	0.0 %	? Ref. amplitude 1H	0.000 V
Slices per slab	20	Adjustment Tolerance	Auto
FoV read	500 mm	Adjust volume	
FoV phase	100.0 %	Position	Isocenter
Slice thickness	3.0 mm	Orientation	Transversal
TR	3000 ms	Rotation	0.00 deg
TE	42.12 ms	R >> L	500 mm
Averages	1	A >> P	500 mm
Concatenations	1	F >> H	60 mm
Filter	None		00 111111
Coil elements	T1	Physio	
Coll elements	11	1st Signal/Mode	None
Contrast		Composing	
Magn. preparation	None	Composing	
Flip angle	180 deg	Sequence	
Fat suppr.	Fat sat.	Introduction	Off
Fat sat. mode	Strong	Dimension	3D
Δ		Reordering	Centric
Averaging mode	Long term	Contrasts	1
Reconstruction	Magnitude	Bandwidth	2004 Hz/Px
Measurements	1	Echo spacing	0.5 ms
Multiple series	Off	Lond spading	
Resolution		RF pulse type	Normal
Base resolution	64	Gradient mode	Fast
	100 %		
Phase resolution		Crusher Momentum	40000
Slice resolution	100 %	Crusher Time	2000
Slice partial Fourier	Off	refocussing type	sinc 2560
Interpolation	Off	flip angle excit	90
PAT mode	None	phase encoding	ON
		Maxwell compensation	Off
Prescan Normalize	Off	ICE program	Mosaic
Raw filter	Off	prepscans	0
Coometry		l brokeseme	•
Geometry Series	Interleaved		
Sat. region 1			
Thickness	66 mm		
Position	Isocenter		
Orientation	Transversal		
į.			

\\USER\Feinberglab\Tanja\GRASE_VASO_InnerVolume_20170629\BP_grase_clean_VASO_V04_pF58_V250 TA: 0:50 PAT: Off Voxel size: 0.8×0.8×0.8 mm Rel. SNR: 1.00 USER: BP_grase_clean_VASO_V04 Pause after meas. 19 0.0 sProperties Multiple series Off Prio Recon Off Resolution Before measurement 162 After measurement Base resolution On 100 % Load to viewer Phase resolution Inline movie Off Slice resolution 100 % Auto store images On Slice partial Fourier 5/8 Interpolation Off Load to stamp segments Off Load images to graphic Off PAT mode None segments Off Auto open inline display Prescan Normalize Off Start measurement without On Raw filter Off further preparation Geometry Off Wait for user to start Series Interleaved Start measurements single Sat. region 1 Routine **Thickness** 40 mm Slab group 1 Position R2.7 P42.1 H0.0 Slabs 1 Orientation Coronal Dist. factor 0 % Special sat. None Position R4.3 P42.1 F33.7 Orientation Transversal Table position Phase enc. dir. A >> P Table position 0 mm 0.00 deg Rotation Inline Composing Off Phase oversampling 0 % System 0.0 % Slice oversampling On Slices per slab M2 On FoV read 130 mm B4 On FoV phase 30.9 % М3 On Slice thickness 0.8 mm V32 Off TR 2500 ms TE 59.78 ms Positioning mode REF **Averages MSMA** S-C-T Concatenations Sagittal R >> L Filter None Coronal A >> P Coil elements B4;M2,3;T1 Transversal F >> H Save uncombined Off Contrast Coil Combine Mode Adaptive Combine Magn. preparation Non-sel. IR AutoAlign 830 ms Auto Coil Select Default Flip angle 180 dea Fat suppr. Fat sat. Shim mode Standard Fat sat. mode Strong Adjust with body coil Off Confirm freq. adjustment Off Averaging mode Long term Assume Silicone Off Reconstruction Magnitude ! Ref. amplitude 1H 250.000 V Measurements Adjustment Tolerance Auto 0.0 sPause after meas. 1 Adjust volume Pause after meas. 2 0.0 sR4.3 P42.1 F33.7 Position Pause after meas. 3 0.0 sOrientation Transversal Pause after meas. 4 0.0 sRotation 0.00 deg Pause after meas. 5 0.0 sR >> L 130 mm Pause after meas. 6 0.0 sA >> P 41 mm Pause after meas. 7 0.0 s7 mm F >> H Pause after meas. 8 0.0 s

1st Signal/Mode

Composing

Sequence

Introduction

Dimension

Reordering

Contrasts

None

Off

3D

1

Centric

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. 18

0.0 s

Bandwidth	1144 Hz/Px
Echo spacing	1 ms
Turbo factor	5
EPI factor	50
RF pulse type	Normal
Gradient mode	Fast*
flip angle excit	90
phase encoding	ON
Maxwell compensation	Off
ICE program	single
prepscans	0

\\USER\Feinberglab\Tanja\GRASE_VASO_InnerVolume_20170629\BP_grase_clean_VASO_V04_pF58_V250_TA: 0:50 PAT: Off Voxel size: 0.8×0.8×0.8 mm Rel. SNR: 1.00 USER: BP_grase_clean_VASO_V04

Properties		Pause after meas. 19	0.0 s
Prio Recon	Off	Multiple series	Off
Before measurement	Oli	Resolution	
After measurement		Base resolution	162
Load to viewer	On	Phase resolution	100 %
Inline movie	Off	Slice resolution	100 %
Auto store images	On	Slice partial Fourier	5/8
Load to stamp segments	Off	Interpolation	Off
Load images to graphic	Off		
segments	Oll	PAT mode	None
Auto open inline display	Off	Decom Normalina	
Start measurement without	On	Prescan Normalize	Off
	Oli	Raw filter	Off
further preparation Wait for user to start	Off	Geometry	
Start measurements		Series	Interleaved
Start measurements	single		
Routine		Sat. region 1	
Slab group 1		Thickness	40 mm
Slabs	1	Position	R2.7 P42.1 H0.0
Dist. factor	0 %	Orientation	Coronal
Position	R4.3 P42.1 F33.7	Special sat.	None
Orientation	Transversal	Table position	Н
Phase enc. dir.	A >> P	Table position	0 mm
Rotation	0.00 deg	Inline Composing	Off
Phase oversampling	0 %	I Illine Composing	Oll
Slice oversampling	0.0 %	System	
Slices per slab	8	T1	On
FoV read	130 mm	M2	On
FoV phase	30.9 %	B4	On
Slice thickness	0.8 mm	M3	On
TR	2500 ms	V32	Off
TE TE	59.78 ms		
Averages	1	Positioning mode	REF
Concatenations	1	MSMA	S - C - T
Filter	None	Sagittal	R >> L
Coil elements	B4;M2,3;T1	Coronal	A >> P
Oon elements	D+,1V12,3,1 1	Transversal	F >> H
Contrast		Save uncombined	Off
Magn. preparation	Non-sel. IR	Coil Combine Mode	Adaptive Combine
TI	880 ms	AutoAlign	
Flip angle	180 deg	Auto Coil Select	Default
Fat suppr.	Fat sat.	Shim mode	Standard
Fat sat. mode	Strong	Adjust with body coil	Off
Averaging mode	Long torm	Confirm freq. adjustment	Off
Averaging mode	Long term	Assume Silicone	Off
Reconstruction	Magnitude	! Ref. amplitude 1H	250.000 V
Measurements	20	Adjustment Tolerance	Auto
Pause after meas. 1	0.0 s	Adjust volume	,
Pause after meas. 2	0.0 s	Position	R4.3 P42.1 F33.7
Pause after meas. 3	0.0 s	Orientation	Transversal
Pause after meas. 4	0.0 s	Rotation	0.00 deg
Pause after meas. 5	0.0 s	R >> L	130 mm
Pause after meas. 6	0.0 s	A >> P	41 mm
Pause after meas. 7	0.0 s	F >> H	7 mm
Pause after meas. 8	0.0 s	' '	<i>i</i> 111111
Pause after meas. 9	0.0 s	Physio	
Pause after meas. 10	0.0 s	1st Signal/Mode	None
Pause after meas. 11	0.0 s		
Pause after meas. 12	0.0 s	Composing	
Pause after meas. 13	0.0 s	Sequence	
Pause after meas. 14	0.0 s	Introduction	Off
Pause after meas. 15	0.0 s	Dimension	3D
Pause after meas. 16	0.0 s	Reordering	Centric
Pause after meas. 17	0.0 s	Contrasts	1
Pause after meas. 18	0.0 s	1 001000	·

Bandwidth	1144 Hz/Px
Echo spacing	1 ms
Turbo factor	5
EPI factor	50
RF pulse type	Normal
Gradient mode	Fast*
flip angle excit phase encoding Maxwell compensation ICE program prepscans	90 ON Off single 0

\\USER\Feinberglab\Tanja\GRASE_VASO_InnerVolume_20170629\BP_grase_clean_VASO_V04_pF58_V250_TA: 0:50 PAT: Off Voxel size: 0.8×0.8×0.8 mm Rel. SNR: 1.00 USER: BP_grase_clean_VASO_V04

Proportion		Pause after meas. 19	0.0 s
Properties Prio Recon	Off	Multiple series	Off
Before measurement	Oil	Resolution	
After measurement		Base resolution	162
Load to viewer	On	Phase resolution	100 %
Inline movie	Off	Slice resolution	100 %
Auto store images	On	Slice partial Fourier	5/8
Load to stamp segments	Off	Interpolation	Off
Load images to graphic	Off		
segments		PAT mode	None
Auto open inline display	Off	Prescan Normalize	Off
Start measurement without	On	Raw filter	Off
further preparation			.
Wait for user to start	Off	Geometry	
Start measurements	single	Series	Interleaved
Routine		Sat. region 1	
		Thickness	40 mm
Slab group 1 Slabs	1	Position	R2.7 P42.1 H0.0
Dist. factor	1 0 %	Orientation	Coronal
Position	R4.3 P42.1 F33.7	Special sat.	None
Orientation	Transversal		
Phase enc. dir.	A >> P	Table position	H
Rotation	0.00 deg	Table position	0 mm
Phase oversampling	0.00 deg 0 %	Inline Composing	Off
Slice oversampling	0.0 %	System	
Slices per slab	8	T1	On
FoV read	130 mm	M2	On
FoV phase	30.9 %	B4	On
Slice thickness	0.8 mm	M3	On
TR	2500 ms	V32	Off
TE	59.78 ms	Positioning mode	REF
Averages	1	MSMA	S-C-T
Concatenations	1	Sagittal	R >> L
Filter	None	Coronal	A >> P
Coil elements	B4;M2,3;T1	Transversal	F >> H
Contract		Save uncombined	Off
Contrast Magn propagation	Non-sel. IR	Coil Combine Mode	Adaptive Combine
Magn. preparation	780 ms	AutoAlign	
Flip angle	180 deg	Auto Coil Select	Default
Fat suppr.	Fat sat.		
Fat sat. mode	Strong	Shim mode	Standard
		Adjust with body coil	Off
Averaging mode	Long term	Confirm freq. adjustment	Off Off
Reconstruction	Magnitude	Assume Silicone	Off
Measurements	20	! Ref. amplitude 1H Adjustment Tolerance	250.000 V Auto
Pause after meas. 1	0.0 s	Adjust volume	Auto
Pause after meas. 2	0.0 s	Position	R4.3 P42.1 F33.7
Pause after meas. 3	0.0 s	Orientation	Transversal
Pause after meas. 4	0.0 s	Rotation	0.00 deg
Pause after meas. 5 Pause after meas. 6	0.0 s	R >> L	130 mm
	0.0 s	A >> P	41 mm
Pause after meas. 7 Pause after meas. 8	0.0 s 0.0 s	F >> H	7 mm
Pause after meas. 6 Pause after meas. 9	0.0 s 0.0 s	I	
Pause after meas. 9	0.0 s	Physio	N
Pause after meas. 11	0.0 s	1st Signal/Mode	None
Pause after meas. 12	0.0 s	Composing	
Pause after meas. 13	0.0 s		
Pause after meas. 14	0.0 s	Sequence	
Pause after meas. 15	0.0 s	Introduction	Off
Pause after meas. 16	0.0 s	Dimension	3D
Pause after meas. 17	0.0 s	Reordering	Centric
Pause after meas. 18	0.0 s	Contrasts	1
i			

Bandwidth Echo spacing	1144 Hz/Px 1 ms
Turbo factor EPI factor RF pulse type Gradient mode	5 50 Normal Fast*
flip angle excit phase encoding Maxwell compensation ICE program prepscans	90 ON Off single 0

\\USER\Feinberglab\Tanja\GRASE_VASO_InnerVolume_20170629\BP_grase_clean_VASO_V04_pFoff_GRAFTA: 0:53 PAT: 2 Voxel size: 0.8×0.8×0.8 mm Rel. SNR: 1.00 USER: BP_grase_clean_VASO_V04

Dranartica		Pause after meas. 19	0.0 s
Properties	0"	Multiple series	Off
Prio Recon	Off		
Before measurement		Resolution	100
After measurement	0	Base resolution	162
Load to viewer	On	Phase resolution	100 %
Inline movie	Off	Slice resolution	100 %
Auto store images	On	Slice partial Fourier	Off
Load to stamp segments	Off	Interpolation	Off
Load images to graphic	Off	PAT mode	GRAPPA
segments		Accel. factor PE	2
Auto open inline display	Off	Ref. lines PE	24
Start measurement without	On	Accel. factor 3D	1
further preparation		Ref. lines 3D	8
Wait for user to start	Off	Reference scan mode	o Separate
Start measurements	single		
Routine		Prescan Normalize	Off
Slab group 1		Raw filter	Off
Slabs	1	Geometry	
Dist. factor	0 %	Series	Interleaved
Position	R4.3 P42.1 F33.7		
Orientation	Transversal	Sat. region 1	
Phase enc. dir.	A >> P	Thickness	40 mm
Rotation	0.00 deg	Position	R2.7 P42.1 H0.0
Phase oversampling	0 %	Orientation	Coronal
Slice oversampling	0.0 %	Special sat.	None
Slices per slab	8	Table position	
FoV read	130 mm	Table position	H
FoV phase	30.9 %	Table position	0 mm
Slice thickness	0.8 mm	Inline Composing	Off
TR	2500 ms	System	
TE	36.88 ms	T1	On
		M2	On
Averages	1	B4	On
Concatenations	I None	M3	On
Filter Coil elements	None	V32	Off
Con elements	B4;M2,3;T1		
Contrast		Positioning mode	REF
Magn. preparation	Non-sel. IR	MSMA	S - C - T
ТІ	830 ms	Sagittal	R >> L
Flip angle	180 deg	Coronal	A >> P
Fat suppr.	Fat sat.	Transversal	F >> H
Fat sat. mode	Strong	Save uncombined	Off
		Coil Combine Mode	Adaptive Combine
Averaging mode	Long term	AutoAlign	
Reconstruction	Magnitude	Auto Coil Select	Default
Measurements	20	Ohim m!-	Ctandard
Pause after meas. 1	0.0 s	Shim mode	Standard
Pause after meas. 2	0.0 s	Adjust with body coil	Off
Pause after meas. 3	0.0 s	Confirm freq. adjustment	Off
Pause after meas. 4	0.0 s	Assume Silicone	Off
Pause after meas. 5	0.0 s	! Ref. amplitude 1H	250.000 V
Pause after meas. 6	0.0 s	Adjustment Tolerance	Auto
Pause after meas. 7	0.0 s	Adjust volume	
Pause after meas. 8	0.0 s	Position	R4.3 P42.1 F33.7
Pause after meas. 9	0.0 s	Orientation	Transversal
Pause after meas. 10	0.0 s	Rotation	0.00 deg
Pause after meas. 11	0.0 s	R >> L	130 mm
Pause after meas. 12	0.0 s	A >> P	41 mm
Pause after meas. 13	0.0 s	F >> H	7 mm
Pause after meas. 14	0.0 s	1	
Pause after meas. 15	0.0 s 0.0 s	Physio	
Pause after meas. 16	0.0 s 0.0 s	1st Signal/Mode	None
Pause after meas. 17	0.0 s	Composing	
Pause after meas. 18	0.0 s		

Sequence

	~"
Introduction	Off
Dimension	3D
Reordering	Centric
Contrasts	1
Bandwidth	1144 Hz/Px
Echo spacing	1.1 ms
Turbo factor	8
EPI factor	50
RF pulse type	Normal
Gradient mode	Fast*
n: 1	
flip angle excit	90
phase encoding	ON
Maxwell compensation	Off
ICE program	single
prepscans	0
•	

\\USER\Feinberglab\Tanja\GRASE_VASO_InnerVolume_20170629\BP_grase_clean_VASO_V04_pFoff_GRAI TA: 0:53 PAT: 2 Voxel size: 0.8×0.8×0.8 mm Rel. SNR: 1.00 USER: BP_grase_clean_VASO_V04

Droportion		Multiple series	Off
Properties Prio Recon	Off	Resolution	
	Oil		162
Before measurement		Base resolution	162 100 %
After measurement	05	Phase resolution	
Load to viewer	On O#	Slice resolution	100 %
Inline movie	Off	Slice partial Fourier	Off
Auto store images	On O"	Interpolation	Off
Load to stamp segments	Off	PAT mode	GRAPPA
Load images to graphic	Off	Accel, factor PE	2
segments		Ref. lines PE	24
Auto open inline display	Off	Accel. factor 3D	 1
Start measurement without	On	Ref. lines 3D	8
further preparation		Reference scan mode	Separate
Wait for user to start	Off	·····	
Start measurements	single	Prescan Normalize	Off
Routine		Raw filter	Off
Slab group 1	-	Geometry	
Slabs	1	Series	Interleaved
Dist. factor	0 %	Cat region 4	
Position	R4.3 P42.1 F33.7	Sat. region 1	40
Orientation	Transversal	Thickness	40 mm
Phase enc. dir.	A >> P	Position	R2.7 P42.1 H0.0
Rotation	0.00 deg	Orientation	Coronal
Phase oversampling	0 %	Special sat.	None
Slice oversampling	0.0 %	Table position	Н
Slices per slab	8	Table position	0 mm
FoV read	130 mm	Inline Composing	Off
FoV phase	30.9 %	I milite Composing	Oll
Slice thickness	0.8 mm	System	
TR	2500 ms	T1	On
TE	36.88 ms	M2	On
Averages	1	B4	On
Concatenations	1	M3	On
Filter	None	V32	Off
Coil elements	B4;M2,3;T1		
Con elements	D+,WZ,O,TT	Positioning mode	REF
Contrast		MSMA	S-C-T
Magn. preparation	None	Sagittal	R >> L
Flip angle	180 deg	Coronal	A >> P
Fat suppr.	Fat sat.	Transversal	F >> H
Fat sat. mode	Strong	Save uncombined	Off
Avoraging	Long torm	Coil Combine Mode	Adaptive Combine
Averaging mode	Long term	AutoAlign	
Reconstruction	Magnitude	Auto Coil Select	Default
Measurements	20	Shim mode	Standard
Pause after meas. 1	0.0 s	Adjust with body coil	Off
Pause after meas. 2	0.0 s	Confirm freq. adjustment	Off
Pause after meas. 3	0.0 s	Assume Silicone	Off
Pause after meas. 4	0.0 s	! Ref. amplitude 1H	250.000 V
Pause after meas. 5	0.0 s	Adjustment Tolerance	250.000 V Auto
Pause after meas. 6	0.0 s		Auto
Pause after meas. 7	0.0 s	Adjust volume	D4 2 D42 4 E22 7
Pause after meas. 8	0.0 s	Position	R4.3 P42.1 F33.7
Pause after meas. 9	0.0 s	Orientation	Transversal
Pause after meas. 10	0.0 s	Rotation	0.00 deg
Pause after meas. 11	0.0 s	R >> L	130 mm
Pause after meas. 12	0.0 s	A >> P	41 mm
Pause after meas. 13	0.0 s	F >> H	7 mm
Pause after meas. 14	0.0 s	Physio	
Pause after meas. 15	0.0 s	1st Signal/Mode	None
Pause after meas. 16	0.0 s	1	110110
Pause after meas. 17	0.0 s	Composing	
Pause after meas. 18	0.0 s	Sequence	
Pause after meas. 19	0.0 s	Оечиеное	
•			

Introduction Dimension Reordering Contrasts Bandwidth Echo spacing	Off 3D Centric 1 1144 Hz/Px 1.1 ms
Turbo factor EPI factor RF pulse type Gradient mode	8 50 Normal Fast*
flip angle excit phase encoding Maxwell compensation ICE program prepscans	90 ON Off single 0

\\USER\Feinberglab\Tanja\GRASE_VASO_InnerVolume_20170629\BP_grase_clean_VASO_V04_pFoff_GRAITE: 0:50 PAT: Off Voxel size: 0.8×0.8×0.8 mm Rel. SNR: 1.00 USER: BP_grase_clean_VASO_V04

Properties		Multiple series	Off
Prio Recon	Off	Resolution	
Before measurement	Oll	Base resolution	162
After measurement		Phase resolution	100 %
Load to viewer	On	Slice resolution	100 %
Inline movie	Off	Slice partial Fourier	Off
Auto store images	On	Interpolation	Off
Load to stamp segments	Off		
Load images to graphic	Off	PAT mode	None
segments		Prescan Normalize	Off
Auto open inline display	Off	Raw filter	Off
Start measurement without	On		.
further preparation		Geometry	
Wait for user to start	Off	Series	Interleaved
Start measurements	single	Sat. region 1	
Routine		Thickness	40 mm
		Position	L4.0 P38.7 H12.8
Slab group 1 Slabs	4	Orientation	Coronal
Dist. factor	1 0 %	Special sat.	None
Position	L2.5 P38.7 F20.9		
Orientation	Transversal	Table position	H
Phase enc. dir.	A >> P	Table position	0 mm
Rotation	0.00 deg	Inline Composing	Off
Phase oversampling	0 %	System	
Slice oversampling	0.0 %	T1	On
Slices per slab	8	M2	On
FoV read	130 mm	B4	On
FoV phase	30.9 %	M3	On
Slice thickness	0.8 mm	V32	Off
TR	2500 ms	Positioning mode	FIX
TE	59.78 ms	Positioning mode MSMA	S - C - T
Averages	1	Sagittal	R >> L
Concatenations	1	Coronal	A >> P
Filter	None	Transversal	F >> H
Coil elements	B4;M2,3;T1	Save uncombined	Off
Contract		Coil Combine Mode	Adaptive Combine
Contrast Magn. preparation	None	AutoAlign	
Flip angle	180 deg	Auto Coil Select	Default
· · ·	· ·		
Fat suppr. Fat sat. mode	Fat sat. Strong	Shim mode	Standard
		Adjust with body coil	Off
Averaging mode	Long term	Confirm freq. adjustment	Off
Reconstruction	Magnitude	Assume Silicone	Off
Measurements	20	? Ref. amplitude 1H	0.000 V
Pause after meas. 1	0.0 s	Adjustment Tolerance	Auto
Pause after meas. 2	0.0 s	Adjust volume ! Position	1 2 5 D20 7 E20 0
Pause after meas. 3	0.0 s	! Position ! Orientation	L2.5 P38.7 F20.9 Transversal
Pause after meas. 4	0.0 s	! Rotation	
Pause after meas. 5	0.0 s	! Rotation ! R >> L	0.00 deg 130 mm
Pause after meas. 6	0.0 s	! A >> P	41 mm
Pause after meas. 7	0.0 s	! F >> H	7 mm
Pause after meas. 8	0.0 s		, 111111
Pause after meas. 9	0.0 s	Physio	
Pause after meas. 10	0.0 s	1st Signal/Mode	None
Pause after meas. 11	0.0 s	Composing	
Pause after meas. 12	0.0 s	Composing	
Pause after meas. 13	0.0 s	Sequence	
Pause after meas. 14 Pause after meas. 15	0.0 s 0.0 s	Introduction	Off
Pause after meas. 15 Pause after meas. 16	0.0 s 0.0 s	Dimension	3D
Pause after meas. 17	0.0 s 0.0 s	Reordering	Centric
Pause after meas. 18	0.0 s	Contrasts	1
Pause after meas. 19	0.0 s	Bandwidth	1144 Hz/Px
i ausc and meas. 13	0.0 0		

Echo spacing	1 ms
Turbo factor	8
EPI factor	50
RF pulse type	Normal
Gradient mode	Fast*
flip angle excit phase encoding Maxwell compensation ICE program prepscans	90 ON Off single 0

\\USER\Feinberglab\Tanja\GRASE_VASO_InnerVolume_20170629\BP_grase_clean_VASO_V04_pF58_GRAFTA: 0:50 PAT: Off Voxel size: 0.8×0.8×0.8 mm Rel. SNR: 1.00 USER: BP_grase_clean_VASO_V04

Properties		Multiple series	Off
Prio Recon	Off	Resolution	
Before measurement	Oll	Base resolution	162
After measurement		Phase resolution	100 %
Load to viewer	On	Slice resolution	100 %
Inline movie	Off	Slice partial Fourier	5/8
Auto store images	On	Interpolation	Off
Load to stamp segments	Off		
Load images to graphic	Off	PAT mode	None
segments		Prescan Normalize	Off
Auto open inline display	Off	Raw filter	Off
Start measurement without	On		.
further preparation		Geometry	
Wait for user to start	Off	Series	Interleaved
Start measurements	single	Sat. region 1	
Routine		Thickness	40 mm
		Position	L4.0 P38.7 H12.8
Slab group 1 Slabs	4	Orientation	Coronal
Dist. factor	1 0 %	Special sat.	None
Position	L2.5 P38.7 F20.9		
Orientation	Transversal	Table position	H
Phase enc. dir.	A >> P	Table position	0 mm
Rotation	0.00 deg	Inline Composing	Off
Phase oversampling	0.00 deg 0 %	System	
Slice oversampling	0.0 %		On
Slices per slab	8	M2	On
FoV read	130 mm	B4	On
FoV phase	30.9 %	M3	On
Slice thickness	0.8 mm	V32	Off
TR	2500 ms	D '''	
TE	59.78 ms	Positioning mode	FIX
Averages	1	MSMA Societal	S-C-T
Concatenations	1	Sagittal	R >> L
Filter	None	Coronal	A >> P
Coil elements	B4;M2,3;T1	Transversal Save uncombined	F >> H Off
ı	, , ,	Coil Combine Mode	Adaptive Combine
Contrast		AutoAlign	
Magn. preparation	None	Auto Coil Select	Default
Flip angle	180 deg		
Fat suppr.	Fat sat.	Shim mode	Standard
Fat sat. mode	Strong	Adjust with body coil	Off
Averaging mode	Long term	Confirm freq. adjustment	Off
Reconstruction	Magnitude	Assume Silicone	Off
Measurements	20	? Ref. amplitude 1H	0.000 V
Pause after meas. 1	0.0 s	Adjustment Tolerance	Auto
Pause after meas. 2	0.0 s	Adjust volume	LO E DOO 7 FOC C
Pause after meas. 3	0.0 s	! Position	L2.5 P38.7 F20.9
Pause after meas. 4	0.0 s	! Orientation	Transversal
Pause after meas. 5	0.0 s	! Rotation	0.00 deg
Pause after meas. 6	0.0 s	! R >> L	130 mm
Pause after meas. 7	0.0 s	! A >> P	41 mm
Pause after meas. 8	0.0 s	! F >> H	7 mm
Pause after meas. 9	0.0 s	Physio	
Pause after meas. 10	0.0 s	1st Signal/Mode	None
Pause after meas. 11	0.0 s		
Pause after meas. 12	0.0 s	Composing	
Pause after meas. 13	0.0 s	Sequence	
Pause after meas. 14	0.0 s	Introduction	Off
Pause after meas. 15	0.0 s	Dimension	3D
Pause after meas. 16	0.0 s	Reordering	Centric
Pause after meas. 17	0.0 s	Contrasts	1
Pause after meas. 18	0.0 s	Bandwidth	1144 Hz/Px
Pause after meas. 19	0.0 s	•	

Echo spacing	1 ms
Turbo factor	5
EPI factor	50
RF pulse type	Normal
Gradient mode	Fast*
flip angle excit	90
phase encoding	ON
Maxwell compensation	Off
ICE program	single
prepscans	0

\\USER\Fe	inberglab\	Tanja\GRASE_VASO_Inner	Volume_2017071	9\localizer_200V
TA: 0:16	PAT: 2	Voxel size: 1.2×1.1×3.0 mm	Rel. SNR: 1.00	SIEMENS: gre

Properties Prio Recon	Off	Phase resolution —— Phase partial Fourier	90 % 6/8
Before measurement	Oil	Interpolation	On
After measurement		PAT mode	GRAPPA
Load to viewer	On	Accel. factor PE	2
Inline movie	Off	Ref. lines PE	24
Auto store images	On	Reference scan mode	Integrated
Load to stamp segments	On	Image Filter	Off
Load images to graphic	On	Distortion Corr.	Off
segments		Prescan Normalize	Off
Auto open inline display	Off	Normalize	Off
Start measurement without	On	B1 filter	Off
further preparation Wait for user to start	Off	Raw filter	Off
Start measurements	single	Elliptical filter	Off
I	Single	Geometry	
Routine		— Multi-slice mode	Sequential
Slice group 1	E	Series	Interleaved
Slices Dist. factor	5 200 %	Coturation and 1	
Position	Isocenter	Saturation mode	Standard None
Orientation	Sagittal	Special sat.	INUIT
Phase enc. dir.	A >> P	Table position	ш
Rotation	0.00 deg	Table position Table position	H 0 mm
Slice group 2	0.00 dog	Inline Composing	Off
Slices	5		OII
Dist. factor	200 %	Tim CT mode	Off
Position	Isocenter	System	
Orientation	Coronal	T1	On
Phase enc. dir.	R >> L	M2	On
Rotation	0.00 deg	B4	On
Slice group 3		M3	On
Slices	5	V32	Off
Dist. factor	200 %		
Position	Isocenter	Positioning mode	FIX
Orientation	Transversal	MSMA	S-C-T
Phase enc. dir.	A >> P	Sagittal	R >> L A >> P
Rotation	0.00 deg	Coronal Transversal	A >> P F >> H
Phase oversampling	0 %	Save uncombined	C >> II
FoV read	280 mm	Coil Combine Mode	Adaptive Combine
FoV phase Slice thickness	100.0 % 3.0 mm	AutoAlign	
TR	10.0 ms	Auto Coil Select	Off
TE	3.00 ms		
Averages	1	Shim mode	Tune up
Concatenations	15	Adjust with body coil	Off
Filter	None	Confirm freq. adjustment Assume Silicone	Off Off
Coil elements	B4;M2,3;T1	! Ref. amplitude 1H	Oπ 200.000 V
Contrast		Adjustment Tolerance	Auto
TD	0 ms	Adjust volume	
MTC	Off	Position	Isocenter
Magn. preparation	None	Orientation	Transversal
Flip angle	10 deg	Rotation	0.00 deg
Fat suppr.	None	R >> L	350 mm
Water suppr.	None	A >> P	263 mm
SWI	Off	F >> H	350 mm
Averaging mode	Short term	Physio	
Reconstruction	Magnitude	1st Signal/Mode	None
Measurements	1	Segments	1
Multiple series	Each measurement	Tagging	None
Resolution		Dark blood	Off
Base resolution	256		
1 = 333 . 333 . 330		Resp. control	Off

Inline

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

TA: 1:09	Voxel size: 3.9×3.9×5.0 mm	Rel. SNR: 1.00 USER	: b1map_658
Properties		M3 V32	On Off
Prio Recon	Off	V32	
Before measurement		Positioning mode	REF
After measurement		MSMA	S - C - T
Load to viewer	On	Sagittal	R >> L
Inline movie	Off	Coronal	A >> P
Auto store images	On	Transversal	F >> H
Load to stamp segments	Off	Save uncombined	Off
Load images to graphic	Off	Coil Combine Mode	Adaptive Combine
segments		AutoAlign	
Auto open inline display	Off	Auto Coil Select	Default
Start measurement without	On		
further preparation	Oli	Shim mode	Tune up
Wait for user to start	Off	Adjust with body coil	Off
Start measurements		Confirm freq. adjustment	Off
Start measurements	single	Assume Silicone	Off
Routine		! Ref. amplitude 1H	230.000 V
Slice group 1		Adjustment Tolerance	Auto
Slices	8	Adjust volume	71010
Dist. factor	200 %	Position	Isocenter
Position	L0.0 A28.5 F5.4	Orientation	Transversal
Orientation	Transversal	Rotation	0.00 deg
Phase enc. dir.	A >> P	R >> L	350 mm
Rotation	0.00 deg	A >> P	263 mm
FoV read	250 mm	F >> H	350 mm
FoV phase	100.0 %	Composing	
Slice thickness	5 mm	Composing	
TR	1000 ms	Sequence	
TE 1	14 ms	Contrasts	2
TE 2	14 ms	Bandwidth	260.416667 Hz/Px
Averages	1		
Filter	None	T1 Compensation	Mean T1
Coil elements	B4;M2,3;T1	Mean T1	1800.0 ms
I	<i>=</i> 1,=,0,1	Angles	1
Contrast		Amplitude Weighting	Linear
Flip angle 1	90 deg	Scale Bar	Enabled
Flip angle 2	120 deg	Raw Data	Disabled
Flip angle 3	60 deg	ı	
Flip angle 4	135 deg		
Flip angle 5	45 deg		
Measurements	1		
Resolution	!		
Base resolution	64		
Phase resolution	100 %		
Raw filter	Off		
Geometry			
Series	Ascending		
Navigator 1			
Position	L0.0 A22.9 F8.8		
Orientation	Transversal		
Rotation			
	0.00 deg		
Base size phase	40 mm		
Base size read	40 mm		
Thickness	40 mm		
Table position	Н		
CADIE DOSIDON			
Table position			
Table position	0 mm		
Table position Inline Composing			
Table position Inline Composing System	0 mm Off		
Table position Inline Composing System T1	0 mm Off		
Table position Inline Composing System	0 mm Off		

 $\verb|\USER\Feinberg| lab\Tanja\GRASE_VASO_InnerVolume_20170719\mp2rage_0.7mm_TR4500| label{label}$

TA: 7:50 PAT: 3	• – –	7 mm Rel. SNR: 1.00 USER	: mp2rage_wip602B
		Image Filter	Off
Properties		—— Distortion Corr.	Off
Prio Recon	Off	Prescan Normalize	Off
Before measurement		Normalize	Off
After measurement			
Load to viewer	On	B1 filter	Off
Inline movie	Off	Raw filter	Off
Auto store images	On	Elliptical filter	Off
	Off	Geometry	
Load to stamp segments			Cinale aleat
Load images to graphic	Off	Multi-slice mode	Single shot
segments		Series	Interleaved
Auto open inline display	Off		
Start measurement without	On	Table position	Н
further preparation		Table position	0 mm
Wait for user to start	On	Inline Composing	Off
Start measurements	single		
	g	System	
Routine		T1	On
Slab group 1		M2	On
Slabs	1	B4	On
Dist. factor	50 %	M3	On
Position	L2.7 A28.3 F39.8	V32	Off
Orientation	Sagittal	v 0 <u>2</u>	
Phase enc. dir.	A >> P	Positioning mode	FIX
		MSMA	S - C - T
Rotation	0.00 deg	Sagittal	R >> L
Phase oversampling	0 %	Coronal	A >> P
Slice oversampling	0.0 %	Transversal	F >> H
Slices per slab	256		Off
FoV read	224 mm	Save uncombined	
FoV phase	100.0 %	Coil Combine Mode	Adaptive Combine
Slice thickness	0.70 mm	AutoAlign	
TR	4500 ms	Auto Coil Select	Default
TE	3.37 ms	China mada	Standard
Averages	1	Shim mode	
Concatenations	1	Adjust with body coil	Off
	I Name	Confirm freq. adjustment	Off
Filter	None	Assume Silicone	Off
Coil elements	B4;M2,3;T1	! Ref. amplitude 1H	230.000 V
Contrast		Adjustment Tolerance	Auto
Magn. preparation	Non-sel, IR	Adjust volume	
		Position	L2.7 A28.3 F39.8
TI 1	900 ms	Orientation	Sagittal
TI 2	3000 ms	Rotation	0.00 deg
Flip angle 1	5 deg	F >> H	224 mm
Flip angle 2	3 deg	A >> P	224 mm
Fat suppr.	Water excit. fast		
Water suppr.	None	R >> L	180 mm
2nd Inversion-Contrast	On	Physio	
		1st Signal/Mode	None
Averaging mode	Long term		
Reconstruction	Magnitude	Dark blood	Off
Measurements	1		
Multiple series	Each measurement	Resp. control	Off
Parallution		Inline	
Resolution	000	Subtract	Off
Base resolution	320	Std-Dev-Sag	Off
Phase resolution	100 %	•	
Slice resolution	100 %	Std-Dev-Cor	Off
Phase partial Fourier	6/8	Std-Dev-Tra	Off
Slice partial Fourier	6/8	Std-Dev-Time	Off
Interpolation	Off	MIP-Sag	Off
		MIP-Cor	Off
PAT mode	GRAPPA	MIP-Tra	Off
Accel. factor PE	3	MIP-Time	Off
Ref. lines PE	36	Save original images	On
Accel. factor 3D	1		
Reference scan mode	Integrated	Comunicati	
		Sequence	

Introduction	On
Dimension	3D
Elliptical scanning	Off
Asymmetric echo	Off
Contrasts	1
Bandwidth	200 Hz/Px
Flow comp.	Slice
Echo spacing	8.3 ms
RF pulse type	Fast
Gradient mode	Fast
Excitation	Non-sel.
RF spoiling	On
FFT Scale Factor	200 %
Line/Partition Swap	Off
Homodyne Phase Filter	Off
Flat Image	On
T1 Map	On
Division Image	Off
ExtInvPulseOn	On
OffResFreqInv	0
Invflipangle	970

\\USER\Feinberglab\Tanja\GRASE_VASO_InnerVolume_20170719\BP_grase_clean_VASO_V04_pF58_V250_TA: 1:00 PAT: Off Voxel size: 0.8×0.8×0.8 mm Rel. SNR: 1.00 USER: BP_grase_clean_VASO_V04

Proportion		Pause after meas. 19	0.0 s
Properties Prio Recon	Off	Multiple series	Off
Before measurement	Oil	Resolution	
After measurement		Base resolution	162
Load to viewer	On	Phase resolution	100 %
Inline movie	Off	Slice resolution	100 %
Auto store images	On	Slice partial Fourier	5/8
Load to stamp segments	Off	Interpolation	Off
Load images to graphic	Off		
segments		PAT mode	None
Auto open inline display	Off	Prescan Normalize	Off
Start measurement without	On	Raw filter	Off
further preparation			
Wait for user to start	Off	Geometry	late de esse d
Start measurements	single	Series	Interleaved
Routine		Sat. region 1	
Slab group 1		Thickness	40 mm
Slabs	1	Position	L5.4 P36.0 H20.9
Dist. factor	0 %	Orientation	Coronal
Position	L3.8 P36.0 F12.8	Special sat.	None
Orientation	Transversal	Table position	
Phase enc. dir.	A >> P	Table position	H 0 mm
Rotation	0.00 deg	Table position	0 mm Off
Phase oversampling	0 %	Inline Composing	Oil
Slice oversampling	0.0 %	System	
Slices per slab	8	T1	On
FoV read	130 mm	M2	On
FoV phase	30.9 %	B4	On
Slice thickness	0.8 mm	M3	On
TR	3000 ms	V32	Off
TE	59.78 ms	Positioning mode	REF
Averages	1	Positioning mode MSMA	S-C-T
Concatenations	1	Sagittal	R >> L
Filter	None	Coronal	A >> P
Coil elements	B4;M2,3;T1	Transversal	F >> H
Contract		Save uncombined	Off
Contrast	Non-sel. IR	Coil Combine Mode	Adaptive Combine
Magn. preparation	1460 ms	AutoAlign	
TI Flip angle		Auto Coil Select	Default
Flip angle Fat suppr.	180 deg Fat sat.		
Fat sat. mode	Strong	Shim mode	Standard
		Adjust with body coil	Off
Averaging mode	Long term	Confirm freq. adjustment	Off
Reconstruction	Magnitude	Assume Silicone	Off
Measurements	20	! Ref. amplitude 1H	250.000 V
Pause after meas. 1	0.0 s	Adjustment Tolerance	Auto
Pause after meas. 2	0.0 s	Adjust volume	1.2.0 D26.0 E42.0
Pause after meas. 3	0.0 s	Position Orientation	L3.8 P36.0 F12.8 Transversal
Pause after meas. 4	0.0 s	Rotation	0.00 deg
Pause after meas. 5	0.0 s	Rotation R >> L	130 mm
Pause after meas. 6	0.0 s	A >> P	41 mm
Pause after meas. 7	0.0 s	F >> H	7 mm
Pause after meas. 8	0.0 s	1	, 111111
Pause after meas. 9	0.0 s	Physio	
Pause after meas. 10	0.0 s	1st Signal/Mode	None
Pause after meas. 11	0.0 s	Composing	
Pause after meas. 12	0.0 s	Composing	
Pause after meas. 13	0.0 s	Sequence	
Pause after meas. 14	0.0 s	Introduction	Off
Pause after meas. 15 Pause after meas. 16	0.0 s	Dimension	3D
Pause after meas. 16 Pause after meas. 17	0.0 s 0.0 s	Reordering	Centric
Pause after meas. 17 Pause after meas. 18		Contrasts	1
Fause allei illeas. 10	0.0 s	•	

Bandwidth	1144 Hz/Px
Echo spacing	1 ms
Turbo factor	5
EPI factor	50
RF pulse type	Normal
Gradient mode	Fast*
flip angle excit	90
phase encoding	ON
Maxwell compensation	Off
ICE program	single
prepscans	0

\\USER\Feinberglab\Tanja\GRASE_VASO_InnerVolume_20170719\BP_grase_clean_VASO_V04_pF58_V250_TA: 2:00 PAT: Off Voxel size: 0.8×0.8×0.8 mm Rel. SNR: 1.00 USER: BP_grase_clean_VASO_V04

Properties		Pause after meas. 19	0.0 s
Properties Prio Recon	Off	Multiple series	Off
Before measurement	Oil	Resolution	
After measurement		Base resolution	162
Load to viewer	On	Phase resolution	100 %
Inline movie	Off	Slice resolution	100 %
Auto store images	On	Slice partial Fourier	5/8
Load to stamp segments	Off	Interpolation	Off
Load images to graphic	Off		
segments		PAT mode	None
Auto open inline display	Off	Prescan Normalize	Off
Start measurement without	On	Raw filter	Off
further preparation			
Wait for user to start	Off	Geometry	
Start measurements	single	Series	Interleaved
Routine		Sat. region 1	
Slab group 1		Thickness	40 mm
Slabs	1	Position	L5.4 P36.0 H20.9
Dist. factor	0 %	Orientation	Coronal
Position	L3.8 P36.0 F12.8	Special sat.	None
Orientation	Transversal	Table position	
Phase enc. dir.	A >> P	Table position	H 0.mm
Rotation	0.00 deg	Table position	0 mm Off
Phase oversampling	0 %	Inline Composing	Oii
Slice oversampling	0.0 %	System	
Slices per slab	8	T1	On
FoV read	130 mm	M2	On
FoV phase	30.9 %	B4	On
Slice thickness	0.8 mm	M3	On
TR	6000 ms	V32	Off
TE	59.78 ms	Positioning mode	FIX
Averages	1	MSMA	S - C - T
Concatenations	1	Sagittal	R >> L
Filter	None	Coronal	A >> P
Coil elements	B4;M2,3;T1	Transversal	F >> H
Contract		Save uncombined	Off
Contrast Magn propagation	Non-sel. IR	Coil Combine Mode	Adaptive Combine
Magn. preparation	1460 ms	AutoAlign	
Flip angle	180 deg	Auto Coil Select	Default
Fat suppr.	Fat sat.		
Fat sat. mode	Strong	Shim mode	Standard
		Adjust with body coil	Off
Averaging mode	Long term	Confirm freq. adjustment	Off
Reconstruction	Magnitude	Assume Silicone	Off
Measurements	20	! Ref. amplitude 1H	250.000 V
Pause after meas. 1	0.0 s	Adjustment Tolerance Adjust volume	Auto
Pause after meas. 2	0.0 s	Position	L3.8 P36.0 F12.8
Pause after meas. 3	0.0 s	Orientation	Transversal
Pause after meas. 4	0.0 s	Rotation	0.00 deg
Pause after meas. 5	0.0 s	R >> L	130 mm
Pause after meas. 6 Pause after meas. 7	0.0 s 0.0 s	A >> P	41 mm
		F >> H	7 mm
Pause after meas. 8 Pause after meas. 9	0.0 s 0.0 s	I	
Pause after meas. 10	0.0 s 0.0 s	Physio	
Pause after meas. 10	0.0 s	1st Signal/Mode	None
Pause after meas. 12	0.0 s	Composing	
Pause after meas. 13	0.0 s		
Pause after meas. 14	0.0 s	Sequence	
Pause after meas. 15	0.0 s	Introduction	Off
Pause after meas. 16	0.0 s	Dimension	3D
Pause after meas. 17	0.0 s	Reordering	Centric
Pause after meas. 18	0.0 s	Contrasts	1
1	-		

Bandwidth Echo spacing	1144 Hz/Px 1 ms
Turbo factor EPI factor RF pulse type Gradient mode	5 50 Normal Fast*
flip angle excit phase encoding Maxwell compensation ICE program prepscans	90 ON Off single 0

\\USER\Feinberglab\Tanja\GRASE_VASO_InnerVolume_20170719\BP_grase_clean_VASO_V04_pF58_V250_TA: 1:00 PAT: Off Voxel size: 0.8×0.8×0.8 mm Rel. SNR: 1.00 USER: BP_grase_clean_VASO_V04

Proportion		Pause after meas. 19	0.0 s
Properties Prio Recon	Off	Multiple series	Off
Before measurement	Oil	Resolution	
After measurement		Base resolution	162
Load to viewer	On	Phase resolution	100 %
Inline movie	Off	Slice resolution	100 %
Auto store images	On	Slice partial Fourier	5/8
Load to stamp segments	Off	Interpolation	Off
Load images to graphic	Off		
segments		PAT mode	None
Auto open inline display	Off	Prescan Normalize	Off
Start measurement without	On	Raw filter	Off
further preparation			
Wait for user to start	Off	Geometry	
Start measurements	single	Series	Interleaved
Routine		Sat. region 1	
Slab group 1		Thickness	40 mm
Slabs	1	Position	L5.4 P36.0 H20.9
Dist. factor	0 %	Orientation	Coronal
Position	L3.8 P36.0 F12.8	Special sat.	None
Orientation	Transversal	Table position	 П
Phase enc. dir.	A >> P	Table position	H 0 mm
Rotation	0.00 deg	Table position	Off
Phase oversampling	0 %	Inline Composing	Oii
Slice oversampling	0.0 %	System	
Slices per slab	8	T1	On
FoV read	130 mm	M2	On
FoV phase	30.9 %	B4	On
Slice thickness	0.8 mm	M3	On
TR	3000 ms	V32	Off
TE	59.78 ms	Positioning mode	REF
Averages	1	MSMA	S-C-T
Concatenations	1	Sagittal	R >> L
Filter	None	Coronal	A >> P
Coil elements	B4;M2,3;T1	Transversal	F >> H
Contrast		Save uncombined	Off
Magn. preparation	Non-sel. IR	Coil Combine Mode	Adaptive Combine
TI	1040 ms	AutoAlign	
Flip angle	180 deg	Auto Coil Select	Default
Fat suppr.	Fat sat.		••••••••••••••••••••••••••••••••••••••
Fat sat. mode	Strong	Shim mode	Standard
		Adjust with body coil	Off Off
Averaging mode	Long term	Confirm freq. adjustment Assume Silicone	Off Off
Reconstruction	Magnitude	! Ref. amplitude 1H	250.000 V
Measurements	20	Adjustment Tolerance	250.000 V Auto
Pause after meas. 1	0.0 s	Adjust volume	Auto
Pause after meas. 2	0.0 s	Position	L3.8 P36.0 F12.8
Pause after meas. 3	0.0 s	Orientation	Transversal
Pause after meas. 4 Pause after meas. 5	0.0 s	Rotation	0.00 deg
Pause after meas. 5 Pause after meas. 6	0.0 s 0.0 s	R >> L	130 mm
Pause after meas. 7	0.0 s	A >> P	41 mm
Pause after meas. 8	0.0 s	F >> H	7 mm
Pause after meas. 9	0.0 s	I	
Pause after meas. 10	0.0 s	Physio	
Pause after meas. 11	0.0 s	1st Signal/Mode	None
Pause after meas. 12	0.0 s	Composing	
Pause after meas. 13	0.0 s		
Pause after meas. 14	0.0 s	Sequence	0"
Pause after meas. 15	0.0 s	Introduction	Off
Pause after meas. 16	0.0 s	Dimension	3D
Pause after meas. 17	0.0 s	Reordering	Centric
Pause after meas. 18	0.0 s	Contrasts	1
•			

Bandwidth	1144 Hz/Px
Echo spacing	1 ms
Turbo factor	5
EPI factor	50
RF pulse type	Normal
Gradient mode	Fast*
flip angle excit	90
phase encoding	ON
Maxwell compensation	Off
ICE program	single
prepscans	0

\\USER\Feinberglab\Tanja\GRASE_VASO_InnerVolume_20170719\BP_grase_clean_VASO_V04_pF58_V250 TA: 2:00 PAT: Off Voxel size: 0.8×0.8×0.8 mm Rel. SNR: 1.00 USER: BP_grase_clean_VASO_V04 Pause after meas. 19 0.0 s**Properties** Multiple series Off Off Prio Recon Resolution Before measurement Base resolution 162 After measurement Load to viewer On Phase resolution 100 % Inline movie Off Slice resolution 100 % Auto store images On Slice partial Fourier 5/8 Load to stamp segments Off Interpolation Off Load images to graphic Off PAT mode None seaments

e P36.0 F12.8 sversal P deg	Prescan Normalize Raw filter Geometry Series Sat. region 1 Thickness Position Orientation Special sat. Table position	Off Off Off Interleaved 40 mm L5.4 P36.0 H20.9 Coronal None
P36.0 F12.8 sversal P	Geometry Series Sat. region 1 Thickness Position Orientation Special sat. Table position	Interleaved 40 mm L5.4 P36.0 H20.9 Coronal
P36.0 F12.8 sversal P	Series Sat. region 1 Thickness Position Orientation Special sat. Table position	40 mm L5.4 P36.0 H20.9 Coronal
P36.0 F12.8 sversal P	Series Sat. region 1 Thickness Position Orientation Special sat. Table position	40 mm L5.4 P36.0 H20.9 Coronal
P36.0 F12.8 sversal P	Sat. region 1 Thickness Position Orientation Special sat. Table position	40 mm L5.4 P36.0 H20.9 Coronal
sversal P	Thickness Position Orientation Special sat. Table position	L5.4 P36.0 H20.9 Coronal
sversal P	Thickness Position Orientation Special sat. Table position	L5.4 P36.0 H20.9 Coronal
sversal P	Position Orientation Special sat. Table position	L5.4 P36.0 H20.9 Coronal
sversal P	Orientation Special sat. Table position	Coronal
sversal P	Special sat. Table position	
sversal P	Table position	
P		• • • • • • • • • • • • • • • • • • • •
		Н
ded	Table position	0 mm
aog	Inline Composing	Off
	System	
6	T1	On
		On
		On
		On O"
****	V32	Off
3 ms	Positioning mode	FIX
	· ·	S - C - T
	_	R >> L
)		A >> P
l2,3;T1		F >> H
		Off
and ID		Adaptive Combine
		Default
•		
	Shim mode	Standard
ng	Adjust with body coil	Off
term	Confirm freq. adjustment	Off
	Assume Silicone	Off
	! Ref. amplitude 1H	250.000 V
	Adjustment Tolerance	Auto
	Adjust volume	
	Position	L3.8 P36.0 F12.8
	Orientation	Transversal
	Rotation	0.00 deg
	R >> L	130 mm
	A >> P	41 mm
	F >> H	7 mm
	ļ	
	-	N
	1st Signal/Mode	None
	Composing	
	-	
	Sequence	
	Introduction	Off
	Dimension	3D
	Reordering	Centric
	Contrasts	1
	1	
, , , , , , , , , , , , , , , , , , ,	sel. IR ms deg at. ng term nitude	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 Assume Silicone ! Ref. amplitude 1H Adjustment Tolerance Adjust volume Position Orientation Rotation R >> L A >> P F >> H Physio 1st Signal/Mode Composing Sequence Introduction Dimension Reordering Contrasts

Bandwidth Echo spacing	1144 Hz/Px 1 ms
Turbo factor EPI factor RF pulse type Gradient mode	5 50 Normal Fast*
flip angle excit phase encoding Maxwell compensation ICE program prepscans	90 ON Off single 0

\\USER\Feinberglab\Tanja\GRASE_VASO_InnerVolume_20170719\BP_grase_clean_VASO_V04_pF58_V250_TA: 1:00 PAT: Off Voxel size: 0.8×0.8×0.8 mm Rel. SNR: 1.00 USER: BP_grase_clean_VASO_V04

Donastica		Pause after meas. 19	0.0 s
Properties Properties	0#	- Multiple series	Off
Prio Recon	Off	Resolution	
Before measurement After measurement		Base resolution	162
Load to viewer	On	Phase resolution	100 %
Inline movie	Off	Slice resolution	100 %
Auto store images	On	Slice partial Fourier	5/8
Load to stamp segments	Off	Interpolation	Off
Load images to graphic	Off		
segments		PAT mode	None
Auto open inline display	Off	Prescan Normalize	Off
Start measurement without	On	Raw filter	Off
further preparation			
Wait for user to start	Off	Geometry	
Start measurements	single	Series	Interleaved
Routine		Sat. region 1	
Slab group 1		- Thickness	40 mm
Slabs	1	Position	L5.4 P36.0 H20.9
Dist. factor	0 %	Orientation	Coronal
Position	L3.8 P36.0 F12.8	Special sat.	None
Orientation	Transversal	Table position	ш
Phase enc. dir.	A >> P	Table position Table position	H 0 mm
Rotation	0.00 deg	Inline Composing	O mm Off
Phase oversampling	0 %	1	Oil
Slice oversampling	0.0 %	System	
Slices per slab	8	T1	On
FoV read	130 mm	M2	On
FoV phase	30.9 %	B4	On
Slice thickness	0.8 mm	M3	On
TR	3000 ms	V32	Off
TE	59.78 ms	Positioning mode	REF
Averages	1	MSMA	S - C - T
Concatenations	1	Sagittal	R >> L
Filter	None	Coronal	A >> P
Coil elements	B4;M2,3;T1	Transversal	F >> H
Contrast		Save uncombined	Off
Magn. preparation	Non-sel. IR	Coil Combine Mode	Adaptive Combine
TI	1880 ms	AutoAlign	·
Flip angle	180 deg	Auto Coil Select	Default
Fat suppr.	Fat sat.	Obine ne ada	04
Fat sat. mode	Strong	Shim mode	Standard
		Adjust with body coil Confirm freq. adjustment	Off Off
Averaging mode	Long term	Assume Silicone	Off
Reconstruction	Magnitude	! Ref. amplitude 1H	250.000 V
Measurements	20	Adjustment Tolerance	Auto
Pause after meas. 1	0.0 s	Adjust volume	, tato
Pause after meas. 2	0.0 s	Position	L3.8 P36.0 F12.8
Pause after meas. 3	0.0 s	Orientation	Transversal
Pause after meas. 4 Pause after meas. 5	0.0 s 0.0 s	Rotation	0.00 deg
Pause after meas. 5 Pause after meas. 6	0.0 s 0.0 s	R >> L	130 mm
Pause after meas. 6 Pause after meas. 7	0.0 s 0.0 s	A >> P	41 mm
Pause after meas. 8	0.0 s 0.0 s	F >> H	7 mm
Pause after meas. 9	0.0 s 0.0 s	ı	
Pause after meas. 10	0.0 s	Physio	
Pause after meas. 11	0.0 s	1st Signal/Mode	None
Pause after meas. 12	0.0 s	Composing	
Pause after meas. 13	0.0 s		
Pause after meas. 14	0.0 s	Sequence	0"
Pause after meas. 15	0.0 s	Introduction	Off
Pause after meas. 16	0.0 s	Dimension	3D
Pause after meas. 17	0.0 s	Reordering	Centric
Pause after meas. 18	0.0 s	Contrasts	1
1			

Bandwidth Echo spacing	1144 Hz/Px 1 ms
Turbo factor EPI factor RF pulse type Gradient mode	5 50 Normal Fast*
flip angle excit phase encoding Maxwell compensation ICE program prepscans	90 ON Off single 0

\\USER\Feinberglab\Tanja\GRASE_VASO_InnerVolume_20170719\BP_grase_clean_VASO_V04_pF58_V250_TA: 2:00 PAT: Off Voxel size: 0.8×0.8×0.8 mm Rel. SNR: 1.00 USER: BP_grase_clean_VASO_V04

Properties		Pause after meas. 19	0.0 s
Properties Prio Recon	Off	Multiple series	Off
Before measurement	Oil	Resolution	
After measurement		Base resolution	162
Load to viewer	On	Phase resolution	100 %
Inline movie	Off	Slice resolution	100 %
Auto store images	On	Slice partial Fourier	5/8
Load to stamp segments	Off	Interpolation	Off
Load images to graphic	Off		
segments		PAT mode	None
Auto open inline display	Off	Prescan Normalize	Off
Start measurement without	On	Raw filter	Off
further preparation			
Wait for user to start	Off	Geometry	
Start measurements	single	Series	Interleaved
Routine		Sat. region 1	
Slab group 1		Thickness	40 mm
Slabs	1	Position	L5.4 P36.0 H20.9
Dist. factor	0 %	Orientation	Coronal
Position	L3.8 P36.0 F12.8	Special sat.	None
Orientation	Transversal	Table position	 П
Phase enc. dir.	A >> P	Table position	H 0.mm
Rotation	0.00 deg	Table position	0 mm Off
Phase oversampling	0 %	Inline Composing	Oii
Slice oversampling	0.0 %	System	
Slices per slab	8	T1	On
FoV read	130 mm	M2	On
FoV phase	30.9 %	B4	On
Slice thickness	0.8 mm	M3	On
TR	6000 ms	V32	Off
TE	59.78 ms	Positioning mode	FIX
Averages	1	MSMA	S - C - T
Concatenations	1	Sagittal	R >> L
Filter	None	Coronal	A >> P
Coil elements	B4;M2,3;T1	Transversal	F >> H
Contract		Save uncombined	Off
Contrast	Non-sel. IR	Coil Combine Mode	Adaptive Combine
Magn. preparation	1880 ms	AutoAlign	
TI Flip angle		Auto Coil Select	Default
Flip angle Fat suppr.	180 deg Fat sat.		
Fat sat. mode	Strong	Shim mode	Standard
i at sat. mode		Adjust with body coil	Off
Averaging mode	Long term	Confirm freq. adjustment	Off
Reconstruction	Magnitude	Assume Silicone	Off
Measurements	20	! Ref. amplitude 1H	250.000 V
Pause after meas. 1	0.0 s	Adjustment Tolerance	Auto
Pause after meas. 2	0.0 s	Adjust volume Position	L3.8 P36.0 F12.8
Pause after meas. 3	0.0 s	Orientation	Transversal
Pause after meas. 4	0.0 s	Rotation	0.00 deg
Pause after meas. 5	0.0 s	R >> L	130 mm
Pause after meas. 6	0.0 s	A >> P	41 mm
Pause after meas. 7	0.0 s	F >> H	7 mm
Pause after meas. 8	0.0 s	I	
Pause after meas. 9	0.0 s	Physio	
Pause after meas. 10	0.0 s	1st Signal/Mode	None
Pause after meas. 11	0.0 s	Composing	
Pause after meas. 12	0.0 s	Composing	
Pause after meas. 13 Pause after meas. 14	0.0 s	Sequence	
Pause after meas. 14 Pause after meas. 15	0.0 s	Introduction	Off
Pause after meas. 15 Pause after meas. 16	0.0 s	Dimension	3D
Pause after meas. 16 Pause after meas. 17	0.0 s 0.0 s	Reordering	Centric
Pause after meas. 17 Pause after meas. 18	0.0 s	Contrasts	1
i ause aitei illeas. 10	0.0 3		

Bandwidth Echo spacing	1144 Hz/Px 1 ms
Turbo factor EPI factor RF pulse type Gradient mode	5 50 Normal Fast*
flip angle excit phase encoding Maxwell compensation ICE program prepscans	90 ON Off single 0

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		BP_grase_clean_VASO_V04_pF58_V250_TI1400
		BP_grase_clean_VASO_V04_pF58_V250_TI1200
		BP_grase_clean_VASO_V04_pF58_V250_TI1600
		BP_grase_clean_VASO_V04_pFoff_iPAT2x1_V170
		BP_grase_clean_VASO_V04_pFoff_iPAT2x1_V170
		BP_grase_clean_VASO_V04_pF58_V250_TI1400
		BP_grase_clean_VASO_V05
	GRASE	E_VASO_InnerVolume_20170629
		BP_grase_clean_VASO_V04_pF58_V250_TI830
		BP_grase_clean_VASO_V04_pF58_V250_TI880
		BP_grase_clean_VASO_V04_pF58_V250_TI780
		BP_grase_clean_VASO_V04_pFoff_GRAPPA2x1_V250_TI830
		BP_grase_clean_VASO_V04_pFoff_GRAPPA2x1_VASOoff_V250_TI830
		BP_grase_clean_VASO_V04_pFoff_GRAPPA1x1_VASOoff_V250_TI830
		BP_grase_clean_VASO_V04_pF58_GRAPPA1x1_VASOoff_V250_TI830
	GRASE	_VASO_InnerVolume_20170719
		localizer_200V
		b1map_230V
		mp2rage_0.7mm_TR4500
		BP_grase_clean_VASO_V04_pF58_V250_TI1460_TR3000
		BP_grase_clean_VASO_V04_pF58_V250_TI1460_TR3000
		BP_grase_clean_VASO_V04_pF58_V250_TI1040_TR3000
		BP_grase_clean_VASO_V04_pF58_V250_TI1040_TR3000
		BP_grase_clean_VASO_V04_pF58_V250_TI1880_TR3000
		BP_grase_clean_VASO_V04_pF58_V250_TI1880_TR3000