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		[XT-ID:93-M-0170] Renzo		
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			scout_sag scout_axial Run1_AEPIG16_singlePol_forRO Run1_AEPIG16_singlePol_forRO Run1_AEPIG16_singlePol_forOR Run3_AEPIG16_dualPol_forRO Run4_AEPIG16_dualPol_forOR FAST_FRISGO_2p2_OR FAST_FRISGO_2p2_RO uhr_meso_vein_RO uhr_meso_vein_OR MPRAGE                      UP t1_mp2rage_sag_p3_0.75mm	Op75

\\USER\FMRIF\[XT-ID:93-M-0170]\Renzo\20250415\_SAM\_mesovein\_fast\_WB\_struc\scout\_sag

TA: 0:14 PM: REF Voxel size: 1.6×1.6×1.6 mmPAT: 3 Rel. SNR: 1.00 : fl

**Properties**

Prio recon	Off
Load images to viewer	On
Inline movie	Off
Auto store images	On
Load images to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Auto close inline display	Off
Start measurement without further preparation	On
Wait for user to start	Off
Start measurements	Single measurement

**Routine**

Slab group	1
Slabs	1
Dist. factor	20 %
Position	L1.1 A15.9 F6.2 mm
Orientation	Sagittal
Phase enc. dir.	A >> P
Phase oversampling	0 %
Slice oversampling	0.0 %
Slices per slab	128
FoV read	260 mm
FoV phase	100.0 %
Slice thickness	1.6 mm
TR	3.25 ms
TE	1.53 ms
Averages	1
Concatenations	1
Filter	B1 filter
Coil elements	AC

**Contrast - Common**

TR	3.25 ms
TE	1.53 ms
Flip angle	16.0 deg

**Contrast - Dynamic**

Averages	1
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1

**Resolution - Common**

FoV read	260 mm
FoV phase	100.0 %
Slice thickness	1.6 mm
Base resolution	160
Phase resolution	100 %
Slice resolution	69 %
Phase partial Fourier	6/8
Slice partial Fourier	6/8
Trajectory	Cartesian

**Resolution - iPAT**

PAT mode	GRAPPA
Accel. factor PE	3
Ref. lines PE	24
Accel. factor 3D	1

**Resolution - iPAT**

Reference scan mode	Integrated
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**Resolution - Filter Image**

Image Filter	Off
Distortion Corr.	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	On
Unfiltered images	Off

**Resolution - Filter Rawdata**

Raw filter	Off
Elliptical filter	Off

**Geometry - Common**

Slab group	1
Slabs	1
Dist. factor	20 %
Position	L1.1 A15.9 F6.2 mm
Orientation	Sagittal
Phase enc. dir.	A >> P
Slice oversampling	0.0 %
Slices per slab	128
FoV read	260 mm
FoV phase	100.0 %
Slice thickness	1.6 mm
TR	3.25 ms
Multi-slice mode	Sequential
Series	Ascending
Concatenations	1

**Geometry - AutoAlign**

Slab group	1
Position	L1.1 A15.9 F6.2 mm
Orientation	Sagittal
Phase enc. dir.	A >> P
Initial Position	L1.1 A15.9 F6.2
L	1.1 mm
A	15.9 mm
F	6.2 mm
Initial Rotation	0.00 deg
Initial Orientation	Sagittal

**Geometry - Tim Planning Suite**

Set-n-Go Protocol	Off
Table position	H
Table position	0 mm
Inline Composing	Off

**System - Miscellaneous**

Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Coil Combine Mode	Sum of Squares
Save uncombined	Off
Matrix Optimization	Off

**System - Miscellaneous**

Coil Select Mode	Default
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**System - Adjustments**

B0 Shim mode	Tune up
B1 Shim mode	TrueForm
Confirm freq. adjustment	Off
Assume Dominant Fat	Off
Assume Silicone	Off
Adjustment Tolerance	Auto

**System - Adjust Volume**

Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
A >> P	263 mm
R >> L	350 mm
F >> H	350 mm
Reset	Off

**System - pTx Volumes**

B1 Shim mode	TrueForm
Excitation	Non-sel.

**System - Tx/Rx**

Frequency 1H	297.178781 MHz
Correction factor	1
Gain	High
Img. Scale Cor.	1.000
Reset	Off
? Ref. amplitude 1H	0.000 V

**Physio - PACE**

Resp. control	Off
Concatenations	1

**Inline - Common**

Flip angle	16.0 deg
Measurements	1
Time to center	6.3 s

**Inline - Inline**

Subtract	Off
Measurements	1
StdDev	Off
Save original images	On

**Inline - MIP**

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

**Inline - Composing**

Inline Composing	Off
Distortion Corr.	Off

**Inline - MapIt**

Save original images	On
MapIt	None
Flip angle	16.0 deg
Measurements	1
Contrasts	1

**Inline - MapIt**

TR	3.25 ms
TE	1.53 ms

**Sequence - Part 1**

Introduction	On
Dimension	3D
Asymmetric echo	Weak
Contrasts	1
Multi-slice mode	Sequential
Bandwidth	540 Hz/Px

**Sequence - Part 2**

RF pulse type	Fast
Gradient mode	Normal
Excitation	Non-sel.
RF spoiling	On

**Sequence - Assistant**

Mode	Off
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\\USER\FMRIF\[XT-ID:93-M-0170]\Renzo\20250415\_SAM\_mesovein\_fast\_WB\_struc\scout\_axial

TA: 0:14 PM: REF Voxel size: 1.6×1.6×1.6 mmPAT: 3 Rel. SNR: 1.00 : fl

**Properties**

Prio recon	Off
Load images to viewer	On
Inline movie	Off
Auto store images	On
Load images to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Auto close inline display	Off
Start measurement without further preparation	On
Wait for user to start	Off
Start measurements	Single measurement

**Routine**

Slab group	1
Slabs	1
Dist. factor	20 %
Position	L1.1 A15.9 F6.2 mm
Orientation	Transversal
Phase enc. dir.	A >> P
Phase oversampling	0 %
Slice oversampling	0.0 %
Slices per slab	128
FoV read	260 mm
FoV phase	100.0 %
Slice thickness	1.6 mm
TR	3.25 ms
TE	1.53 ms
Averages	1
Concatenations	1
Filter	B1 filter
Coil elements	AC

**Contrast - Common**

TR	3.25 ms
TE	1.53 ms
Flip angle	16.0 deg

**Contrast - Dynamic**

Averages	1
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1

**Resolution - Common**

FoV read	260 mm
FoV phase	100.0 %
Slice thickness	1.6 mm
Base resolution	160
Phase resolution	100 %
Slice resolution	69 %
Phase partial Fourier	6/8
Slice partial Fourier	6/8
Trajectory	Cartesian

**Resolution - iPAT**

PAT mode	GRAPPA
Accel. factor PE	3
Ref. lines PE	24
Accel. factor 3D	1

**Resolution - iPAT**

Reference scan mode	Integrated
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**Resolution - Filter Image**

Image Filter	Off
Distortion Corr.	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	On
Unfiltered images	Off

**Resolution - Filter Rawdata**

Raw filter	Off
Elliptical filter	Off

**Geometry - Common**

Slab group	1
Slabs	1
Dist. factor	20 %
Position	L1.1 A15.9 F6.2 mm
Orientation	Transversal
Phase enc. dir.	A >> P
Slice oversampling	0.0 %
Slices per slab	128
FoV read	260 mm
FoV phase	100.0 %
Slice thickness	1.6 mm
TR	3.25 ms
Multi-slice mode	Sequential
Series	Ascending
Concatenations	1

**Geometry - AutoAlign**

Slab group	1
Position	L1.1 A15.9 F6.2 mm
Orientation	Transversal
Phase enc. dir.	A >> P
Initial Position	Isocenter
L	0.0 mm
P	0.0 mm
H	0.0 mm
Initial Rotation	0.00 deg
Initial Orientation	Transversal

**Geometry - Tim Planning Suite**

Set-n-Go Protocol	Off
Table position	H
Table position	0 mm
Inline Composing	Off

**System - Miscellaneous**

Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Coil Combine Mode	Sum of Squares
Save uncombined	Off
Matrix Optimization	Off

**System - Miscellaneous**

Coil Select Mode	Default
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**System - Adjustments**

B0 Shim mode	Tune up
B1 Shim mode	TrueForm
Confirm freq. adjustment	Off
Assume Dominant Fat	Off
Assume Silicone	Off
Adjustment Tolerance	Auto

**System - Adjust Volume**

Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
A >> P	263 mm
R >> L	350 mm
F >> H	350 mm
Reset	Off

**System - pTx Volumes**

B1 Shim mode	TrueForm
Excitation	Non-sel.

**System - Tx/Rx**

Frequency 1H	297.178781 MHz
Correction factor	1
Gain	High
Img. Scale Cor.	1.000
Reset	Off
? Ref. amplitude 1H	0.000 V

**Physio - PACE**

Resp. control	Off
Concatenations	1

**Inline - Common**

Flip angle	16.0 deg
Measurements	1
Time to center	6.3 s

**Inline - Inline**

Subtract	Off
Measurements	1
StdDev	Off
Save original images	On

**Inline - MIP**

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

**Inline - Composing**

Inline Composing	Off
Distortion Corr.	Off

**Inline - MapIt**

Save original images	On
MapIt	None
Flip angle	16.0 deg
Measurements	1
Contrasts	1

**Inline - MapIt**

TR	3.25 ms
TE	1.53 ms

**Sequence - Part 1**

Introduction	On
Dimension	3D
Asymmetric echo	Weak
Contrasts	1
Multi-slice mode	Sequential
Bandwidth	540 Hz/Px

**Sequence - Part 2**

RF pulse type	Fast
Gradient mode	Normal
Excitation	Non-sel.
RF spoiling	On

**Sequence - Assistant**

Mode	Off
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\\USER\FMRIF\[XT-ID:93-M-0170]\Renzo\20250415\_SAM\_mesovein\_fast\_WB\_struc\Run1\_AEPIG16\_singlePol\_forRO

TA: 0:30 PM: FIX Voxel size: 0.9×0.9×0.8 mmPAT: 16 Rel. SNR: 1.00 : nih5k

### Properties

Prio recon	Off
Load images to viewer	On
Inline movie	Off
Auto store images	On
Load images to stamp segments	Off
Load images to graphic segments	Off
Auto open inline display	Off
Auto close inline display	Off
Start measurement without further preparation	Off
Wait for user to start	Off
Start measurements	Single measurement

### Routine

Slab group	1
Slabs	1
Position	L0.0 P4.7 H13.8 mm
Orientation	T > C-18.7
Phase enc. dir.	A >> P
AutoAlign	---
Slab Scale	-10 %
Slices per slab	180
FoV read	220 mm
FoV phase	99.2 %
Slice thickness	0.85 mm
TR 1	56.6 ms
TR 2	2547 ms
TE 1	18.30 ms
Averages	1
Filter	None
Coil elements	AC

### Contrast - Common

TR 1	56.6 ms
TR 2	2547 ms
TE 1	18.30 ms
Multi-echo spacing	48.9 ms
Magn. preparation	None
Flip angle	18 deg
Fat suppr.	None
Magn. Prep. Shots	1

### Contrast - Dynamic

Averages	1
Averaging mode	Long term
Reconstruction	Magnitude
Measurements	4
Pause after meas. 1	0.0 s
Pause after meas. 2	0.0 s
Pause after meas. 3	0.0 s

### Resolution - Common

FoV read	220 mm
FoV phase	99.2 %
Slice thickness	0.85 mm
Base resolution	258
Phase resolution	100 %
Slice resolution	100 %
Phase partial Fourier	6/8

### Resolution - Common

Slice partial Fourier	Off
Interpolation	Off

### Resolution - iPAT

PAT mode	CAIPIRINHA
Acc. factor PE	4
Ref. lines PE	80
Acc. factor 3D	4
Ref. lines 3D	36
CAIPI 3D Shift	2
Reference Scan Mode	GRE/dual-polar
CAIPI Mode (tooltip)	Skipped-CAIPI
Total PAT factor	16

### Resolution - Filter Image

Image Filter	Off
Distortion Corr.	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off

### Resolution - Filter Rawdata

Raw filter	Off
Elliptical filter	Off

### Geometry - Common

Slab group	1
Slabs	1
Position	L0.0 P4.7 H13.8 mm
Orientation	T > C-18.7
Phase enc. dir.	A >> P
Slab Scale	-10 %
Slices per slab	180
FoV read	220 mm
FoV phase	99.2 %
Slice thickness	0.85 mm
TR 1	56.6 ms
TR 2	2547 ms

### Geometry - AutoAlign

Slab group	1
Position	L0.0 P4.7 H13.8 mm
Orientation	T > C-18.7
Phase enc. dir.	A >> P
AutoAlign	---
Initial Position	L0.0 P4.7 H13.8
L	0.0 mm
P	4.7 mm
H	13.8 mm
Initial Rotation	0.00 deg
Initial Orientation	T > C
T > C	-18.7
> S	0.0

### Geometry - Saturation

Saturation mode	Standard
Fat suppr.	None

**Geometry - Tim Planning Suite**

Set-n-Go Protocol	Off
Table position	H
Table position	0 mm
Inline Composing	Off

**System - Miscellaneous**

Positioning mode	FIX
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Coil Combine Mode	Sum of Squares
Save uncombined	Off
Matrix Optimization	Off
AutoAlign	---
Coil Select Mode	Default

**System - Adjustments**

B0 Shim mode	Brain
B1 Shim mode	TrueForm
Confirm freq. adjustment	Off
Assume Dominant Fat	Off
Assume Silicone	Off
Adjustment Tolerance	Auto

**System - Adjust Volume**

! Position	L0.0 P6.5 H15.0 mm
! Orientation	Sagittal
! Rotation	18.70 deg
! A >> P	167 mm
! F >> H	95 mm
! R >> L	133 mm
Reset	Off

**System - pTx Volumes**

B1 Shim mode	TrueForm
Excitation	Slab-sel.

**System - Tx/Rx**

Frequency 1H	297.178781 MHz
Correction factor	1
Gain	Low
Img. Scale Cor.	1.000
Reset	Off
! Ref. amplitude 1H	200.000 V

**Sequence - Part 1**

Introduction	On
Dimension	3D
Reordering	Linear
Contrasts	1
Echo spacing	1 ms
Bandwidth	1140 Hz/Px

**Sequence - Part 2**

EPI factor	48
Segmentation	1
RF pulse type	Normal
Gradient mode	Fast
Excitation	Slab-sel.
RF spoiling	On

**Sequence - Part 2**

Turbo factor	45
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**Sequence - Special**

PATRef FA	5 deg
RF duration	380 us
RF BWT product	7
Ernst T1	1200 ms
PATRef prep. shots	100
Volume dummy shots	0
Dummy Measurements	0
ETL per RTEB	1
Invert PE	Off
Min. TE if PF	On
Echo Time Shift	On
Ramp Sampling	On
NORDIC	On
SVDPC	On
Sym VASO	Off
Dual-pol. EPI	Off
Invert RO	Off
Invert 3D	Off
Disable PF reco	Off
Disable PF reco	Off
Save sampling	Off
PE VComp	Off
Water Exc.	Binomial-11
External PC	per Series
FIDNavs	-none-
EPI rise time factor	1.20
Mosaic DICOMs	On
Modify Ice Config	On
G-factor map	Off
GRAPPA Regularization	10 10 <sup>-6</sup>
Var. FA /MAGEC	1

**Sequence - Assistant**

Mode	Off
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\\USER\FMRIF\[XT-ID:93-M-0170]\Renzo\20250415\_SAM\_mesovein\_fast\_WB\_struc\Run1\_AEPIG16\_singlePol\_forRO

TA: 10:37 PM: FIX Voxel size: 0.9×0.9×0.8 mmPAT: 16 Rel. SNR: 1.00 : nih5k

### Properties

Prio recon	Off
Load images to viewer	On
Inline movie	Off
Auto store images	On
Load images to stamp segments	Off
Load images to graphic segments	Off
Auto open inline display	Off
Auto close inline display	Off
Start measurement without further preparation	Off
Wait for user to start	Off
Start measurements	Single measurement

### Routine

Slab group	1
Slabs	1
Position	L0.0 P4.7 H13.8 mm
Orientation	T > C-18.7
Phase enc. dir.	A >> P
AutoAlign	---
Slab Scale	-10 %
Slices per slab	180
FoV read	220 mm
FoV phase	99.2 %
Slice thickness	0.85 mm
TR 1	56.6 ms
TR 2	2547 ms
TE 1	18.30 ms
Averages	1
Filter	None
Coil elements	AC

### Contrast - Common

TR 1	56.6 ms
TR 2	2547 ms
TE 1	18.30 ms
Multi-echo spacing	48.9 ms
Magn. preparation	None
Flip angle	18 deg
Fat suppr.	None
Magn. Prep. Shots	1

### Contrast - Dynamic

Averages	1
Averaging mode	Long term
Reconstruction	Magnitude
Measurements	242
Pause after meas.	0.0 s

### Resolution - Common

FoV read	220 mm
FoV phase	99.2 %
Slice thickness	0.85 mm
Base resolution	258
Phase resolution	100 %
Slice resolution	100 %
Phase partial Fourier	6/8
Slice partial Fourier	Off
Interpolation	Off

### Resolution - iPAT

PAT mode	CAIPIRINHA
Acc. factor PE	4
Ref. lines PE	80
Acc. factor 3D	4
Ref. lines 3D	36
CAIPI 3D Shift	2
Reference Scan Mode	GRE/dual-polar
CAIPI Mode (tooltip)	Skipped-CAIPI
Total PAT factor	16

### Resolution - Filter Image

Image Filter	Off
Distortion Corr.	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off

### Resolution - Filter Rawdata

Raw filter	Off
Elliptical filter	Off

### Geometry - Common

Slab group	1
Slabs	1
Position	L0.0 P4.7 H13.8 mm
Orientation	T > C-18.7
Phase enc. dir.	A >> P
Slab Scale	-10 %
Slices per slab	180
FoV read	220 mm
FoV phase	99.2 %
Slice thickness	0.85 mm
TR 1	56.6 ms
TR 2	2547 ms

### Geometry - AutoAlign

Slab group	1
Position	L0.0 P4.7 H13.8 mm
Orientation	T > C-18.7
Phase enc. dir.	A >> P
AutoAlign	---
Initial Position	L0.0 P4.7 H13.8
L	0.0 mm
P	4.7 mm
H	13.8 mm
Initial Rotation	0.00 deg
Initial Orientation	T > C
T > C	-18.7
> S	0.0

### Geometry - Saturation

Saturation mode	Standard
Fat suppr.	None

### Geometry - Tim Planning Suite

Set-n-Go Protocol	Off
Table position	H
Table position	0 mm
Inline Composing	Off



**System - Miscellaneous**

Positioning mode	FIX
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Coil Combine Mode	Sum of Squares
Save uncombined	Off
Matrix Optimization	Off
AutoAlign	---
Coil Select Mode	Default

**System - Adjustments**

B0 Shim mode	Brain
B1 Shim mode	TrueForm
Confirm freq. adjustment	Off
Assume Dominant Fat	Off
Assume Silicone	Off
Adjustment Tolerance	Auto

**System - Adjust Volume**

! Position	L0.0 P6.5 H15.0 mm
! Orientation	Sagittal
! Rotation	18.70 deg
! A >> P	167 mm
! F >> H	95 mm
! R >> L	133 mm
Reset	Off

**System - pTx Volumes**

B1 Shim mode	TrueForm
Excitation	Slab-sel.

**System - Tx/Rx**

Frequency 1H	297.178781 MHz
Correction factor	1
Gain	Low
Img. Scale Cor.	1.000
Reset	Off
! Ref. amplitude 1H	200.000 V

**Sequence - Part 1**

Introduction	On
Dimension	3D
Reordering	Linear
Contrasts	1
Echo spacing	1 ms
Bandwidth	1140 Hz/Px

**Sequence - Part 2**

EPI factor	48
Segmentation	1
RF pulse type	Normal
Gradient mode	Fast
Excitation	Slab-sel.
RF spoiling	On
Turbo factor	45

**Sequence - Special**

PATRef FA	5 deg
RF duration	380 us
RF BWT product	7

**Sequence - Special**

Ernst T1	1200 ms
PATRef prep. shots	100
Volume dummy shots	0
Dummy Measurements	0
ETL per RTEB	1
Invert PE	Off
Min. TE if PF	On
Echo Time Shift	On
Ramp Sampling	On
NORDIC	On
SVDPC	On
Sym VASO	Off
Dual-pol. EPI	Off
Invert RO	Off
Invert 3D	Off
Disable PF reco	Off
Disable PF reco	Off
Save sampling	Off
PE VComp	Off
Water Exc.	Binomial-11
External PC	per Series
FIDNavs	-none-
EPI rise time factor	1.20
Mosaic DICOMs	On
Modify Ice Config	On
G-factor map	Off
GRAPPA Regularization	10 10 <sup>-6</sup>
Var. FA /MAGEC	1

**Sequence - Assistant**

Mode	Off
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\\USER\FMRIF\[XT-ID:93-M-0170]\Renzo\20250415\_SAM\_mesovein\_fast\_WB\_struc\Run1\_AEPIG16\_singlePol\_forOR

TA: 10:37 PM: FIX Voxel size: 0.9×0.9×0.8 mmPAT: 16 Rel. SNR: 1.00 : nih5k

### Properties

Prio recon	Off
Load images to viewer	On
Inline movie	Off
Auto store images	On
Load images to stamp segments	Off
Load images to graphic segments	Off
Auto open inline display	Off
Auto close inline display	Off
Start measurement without further preparation	Off
Wait for user to start	Off
Start measurements	Single measurement

### Routine

Slab group	1
Slabs	1
Position	L0.0 P4.7 H13.8 mm
Orientation	T > C-18.7
Phase enc. dir.	A >> P
AutoAlign	---
Slab Scale	-10 %
Slices per slab	180
FoV read	220 mm
FoV phase	99.2 %
Slice thickness	0.85 mm
TR 1	56.6 ms
TR 2	2547 ms
TE 1	18.30 ms
Averages	1
Filter	None
Coil elements	AC

### Contrast - Common

TR 1	56.6 ms
TR 2	2547 ms
TE 1	18.30 ms
Multi-echo spacing	48.9 ms
Magn. preparation	None
Flip angle	18 deg
Fat suppr.	None
Magn. Prep. Shots	1

### Contrast - Dynamic

Averages	1
Averaging mode	Long term
Reconstruction	Magnitude
Measurements	242
Pause after meas.	0.0 s

### Resolution - Common

FoV read	220 mm
FoV phase	99.2 %
Slice thickness	0.85 mm
Base resolution	258
Phase resolution	100 %
Slice resolution	100 %
Phase partial Fourier	6/8
Slice partial Fourier	Off
Interpolation	Off

### Resolution - iPAT

PAT mode	CAIPIRINHA
Acc. factor PE	4
Ref. lines PE	80
Acc. factor 3D	4
Ref. lines 3D	36
CAIPI 3D Shift	2
Reference Scan Mode	GRE/dual-polar
CAIPI Mode (tooltip)	Skipped-CAIPI
Total PAT factor	16

### Resolution - Filter Image

Image Filter	Off
Distortion Corr.	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off

### Resolution - Filter Rawdata

Raw filter	Off
Elliptical filter	Off

### Geometry - Common

Slab group	1
Slabs	1
Position	L0.0 P4.7 H13.8 mm
Orientation	T > C-18.7
Phase enc. dir.	A >> P
Slab Scale	-10 %
Slices per slab	180
FoV read	220 mm
FoV phase	99.2 %
Slice thickness	0.85 mm
TR 1	56.6 ms
TR 2	2547 ms

### Geometry - AutoAlign

Slab group	1
Position	L0.0 P4.7 H13.8 mm
Orientation	T > C-18.7
Phase enc. dir.	A >> P
AutoAlign	---
Initial Position	L0.0 P4.7 H13.8
L	0.0 mm
P	4.7 mm
H	13.8 mm
Initial Rotation	0.00 deg
Initial Orientation	T > C
T > C	-18.7
> S	0.0

### Geometry - Saturation

Saturation mode	Standard
Fat suppr.	None

### Geometry - Tim Planning Suite

Set-n-Go Protocol	Off
Table position	H
Table position	0 mm
Inline Composing	Off

**System - Miscellaneous**

Positioning mode	FIX
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Coil Combine Mode	Sum of Squares
Save uncombined	Off
Matrix Optimization	Off
AutoAlign	---
Coil Select Mode	Default

**System - Adjustments**

B0 Shim mode	Brain
B1 Shim mode	TrueForm
Confirm freq. adjustment	Off
Assume Dominant Fat	Off
Assume Silicone	Off
Adjustment Tolerance	Auto

**System - Adjust Volume**

! Position	L0.0 P6.5 H15.0 mm
! Orientation	Sagittal
! Rotation	18.70 deg
! A >> P	167 mm
! F >> H	95 mm
! R >> L	133 mm
Reset	Off

**System - pTx Volumes**

B1 Shim mode	TrueForm
Excitation	Slab-sel.

**System - Tx/Rx**

Frequency 1H	297.178781 MHz
Correction factor	1
Gain	Low
Img. Scale Cor.	1.000
Reset	Off
! Ref. amplitude 1H	200.000 V

**Sequence - Part 1**

Introduction	On
Dimension	3D
Reordering	Linear
Contrasts	1
Echo spacing	1 ms
Bandwidth	1140 Hz/Px

**Sequence - Part 2**

EPI factor	48
Segmentation	1
RF pulse type	Normal
Gradient mode	Fast
Excitation	Slab-sel.
RF spoiling	On
Turbo factor	45

**Sequence - Special**

PATRef FA	5 deg
RF duration	380 us
RF BWT product	7

**Sequence - Special**

Ernst T1	1200 ms
PATRef prep. shots	100
Volume dummy shots	0
Dummy Measurements	0
ETL per RTEB	1
Invert PE	Off
Min. TE if PF	On
Echo Time Shift	On
Ramp Sampling	On
NORDIC	On
SVDPC	On
Sym VASO	Off
Dual-pol. EPI	Off
Invert RO	On
Invert 3D	Off
Disable PF reco	Off
Disable PF reco	Off
Save sampling	Off
PE VComp	Off
Water Exc.	Binomial-11
External PC	per Series
FIDNavs	-none-
EPI rise time factor	1.20
Mosaic DICOMs	On
Modify Ice Config	On
G-factor map	Off
GRAPPA Regularization	10 10 <sup>-6</sup>
Var. FA /MAGEC	1

**Sequence - Assistant**

Mode	Off
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\\USER\FMRIF\[XT-ID:93-M-0170]\Renzo\20250415\_SAM\_mesovein\_fast\_WB\_struc\Run3\_AEPIG16\_dualPol\_forRO

TA: 10:37 PM: FIX Voxel size: 0.9×0.9×0.8 mmPAT: 16 Rel. SNR: 1.00 : nih5k

### Properties

Prio recon	Off
Load images to viewer	On
Inline movie	Off
Auto store images	On
Load images to stamp segments	Off
Load images to graphic segments	Off
Auto open inline display	Off
Auto close inline display	Off
Start measurement without further preparation	Off
Wait for user to start	Off
Start measurements	Single measurement

### Routine

Slab group	1
Slabs	1
Position	L0.0 P4.7 H13.8 mm
Orientation	T > C-18.7
Phase enc. dir.	A >> P
AutoAlign	---
Slab Scale	-10 %
Slices per slab	180
FoV read	220 mm
FoV phase	99.2 %
Slice thickness	0.85 mm
TR 1	56.6 ms
TR 2	2547 ms
TE 1	18.30 ms
Averages	1
Filter	None
Coil elements	AC

### Contrast - Common

TR 1	56.6 ms
TR 2	2547 ms
TE 1	18.30 ms
Multi-echo spacing	48.9 ms
Magn. preparation	None
Flip angle	18 deg
Fat suppr.	None
Magn. Prep. Shots	1

### Contrast - Dynamic

Averages	1
Averaging mode	Long term
Reconstruction	Magnitude
Measurements	242
Pause after meas.	0.0 s

### Resolution - Common

FoV read	220 mm
FoV phase	99.2 %
Slice thickness	0.85 mm
Base resolution	258
Phase resolution	100 %
Slice resolution	100 %
Phase partial Fourier	6/8
Slice partial Fourier	Off
Interpolation	Off

### Resolution - iPAT

PAT mode	CAIPIRINHA
Acc. factor PE	4
Ref. lines PE	80
Acc. factor 3D	4
Ref. lines 3D	36
CAIPI 3D Shift	2
Reference Scan Mode	GRE/dual-polar
CAIPI Mode (tooltip)	Skipped-CAIPI
Total PAT factor	16

### Resolution - Filter Image

Image Filter	Off
Distortion Corr.	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off

### Resolution - Filter Rawdata

Raw filter	Off
Elliptical filter	Off

### Geometry - Common

Slab group	1
Slabs	1
Position	L0.0 P4.7 H13.8 mm
Orientation	T > C-18.7
Phase enc. dir.	A >> P
Slab Scale	-10 %
Slices per slab	180
FoV read	220 mm
FoV phase	99.2 %
Slice thickness	0.85 mm
TR 1	56.6 ms
TR 2	2547 ms

### Geometry - AutoAlign

Slab group	1
Position	L0.0 P4.7 H13.8 mm
Orientation	T > C-18.7
Phase enc. dir.	A >> P
AutoAlign	---
Initial Position	L0.0 P4.7 H13.8
L	0.0 mm
P	4.7 mm
H	13.8 mm
Initial Rotation	0.00 deg
Initial Orientation	T > C
T > C	-18.7
> S	0.0

### Geometry - Saturation

Saturation mode	Standard
Fat suppr.	None

### Geometry - Tim Planning Suite

Set-n-Go Protocol	Off
Table position	H
Table position	0 mm
Inline Composing	Off

**System - Miscellaneous**

Positioning mode	FIX
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Coil Combine Mode	Sum of Squares
Save uncombined	Off
Matrix Optimization	Off
AutoAlign	---
Coil Select Mode	Default

**System - Adjustments**

B0 Shim mode	Brain
B1 Shim mode	TrueForm
Confirm freq. adjustment	Off
Assume Dominant Fat	Off
Assume Silicone	Off
Adjustment Tolerance	Auto

**System - Adjust Volume**

! Position	L0.0 P6.5 H15.0 mm
! Orientation	Sagittal
! Rotation	18.70 deg
! A >> P	167 mm
! F >> H	95 mm
! R >> L	133 mm
Reset	Off

**System - pTx Volumes**

B1 Shim mode	TrueForm
Excitation	Slab-sel.

**System - Tx/Rx**

Frequency 1H	297.178781 MHz
Correction factor	1
Gain	Low
Img. Scale Cor.	1.000
Reset	Off
! Ref. amplitude 1H	200.000 V

**Sequence - Part 1**

Introduction	On
Dimension	3D
Reordering	Linear
Contrasts	1
Echo spacing	1 ms
Bandwidth	1140 Hz/Px

**Sequence - Part 2**

EPI factor	48
Segmentation	1
RF pulse type	Normal
Gradient mode	Fast
Excitation	Slab-sel.
RF spoiling	On
Turbo factor	45

**Sequence - Special**

PATRef FA	5 deg
RF duration	380 us
RF BWT product	7

**Sequence - Special**

Ernst T1	1200 ms
PATRef prep. shots	100
Volume dummy shots	0
Dummy Measurements	0
ETL per RTEB	1
Invert PE	Off
Min. TE if PF	On
Echo Time Shift	On
Ramp Sampling	On
NORDIC	On
SVDPC	On
Sym VASO	Off
Dual-pol. EPI	On
Invert RO	Off
Invert 3D	Off
Disable PF reco	Off
Disable PF reco	Off
Save sampling	Off
PE VComp	Off
Water Exc.	Binomial-11
External PC	per Series
FIDNavs	-none-
EPI rise time factor	1.20
Mosaic DICOMs	On
Modify Ice Config	On
G-factor map	Off
GRAPPA Regularization	10 10 <sup>-6</sup>
Var. FA /MAGEC	1

**Sequence - Assistant**

Mode	Off
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\\USER\FMRIF\[XT-ID:93-M-0170]\Renzo\20250415\_SAM\_mesovein\_fast\_WB\_struc\Run4\_AEPIG16\_dualPol\_forOR

TA: 10:37 PM: FIX Voxel size: 0.9×0.9×0.8 mmPAT: 16 Rel. SNR: 1.00 : nih5k

### Properties

Prio recon	Off
Load images to viewer	On
Inline movie	Off
Auto store images	On
Load images to stamp segments	Off
Load images to graphic segments	Off
Auto open inline display	Off
Auto close inline display	Off
Start measurement without further preparation	Off
Wait for user to start	Off
Start measurements	Single measurement

### Routine

Slab group	1
Slabs	1
Position	L0.0 P4.7 H13.8 mm
Orientation	T > C-18.7
Phase enc. dir.	A >> P
AutoAlign	---
Slab Scale	-10 %
Slices per slab	180
FoV read	220 mm
FoV phase	99.2 %
Slice thickness	0.85 mm
TR 1	56.6 ms
TR 2	2547 ms
TE 1	18.30 ms
Averages	1
Filter	None
Coil elements	AC

### Contrast - Common

TR 1	56.6 ms
TR 2	2547 ms
TE 1	18.30 ms
Multi-echo spacing	48.9 ms
Magn. preparation	None
Flip angle	18 deg
Fat suppr.	None
Magn. Prep. Shots	1

### Contrast - Dynamic

Averages	1
Averaging mode	Long term
Reconstruction	Magnitude
Measurements	242
Pause after meas.	0.0 s

### Resolution - Common

FoV read	220 mm
FoV phase	99.2 %
Slice thickness	0.85 mm
Base resolution	258
Phase resolution	100 %
Slice resolution	100 %
Phase partial Fourier	6/8
Slice partial Fourier	Off
Interpolation	Off

### Resolution - iPAT

PAT mode	CAIPIRINHA
Acc. factor PE	4
Ref. lines PE	80
Acc. factor 3D	4
Ref. lines 3D	36
CAIPI 3D Shift	2
Reference Scan Mode	GRE/dual-polar
CAIPI Mode (tooltip)	Skipped-CAIPI
Total PAT factor	16

### Resolution - Filter Image

Image Filter	Off
Distortion Corr.	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off

### Resolution - Filter Rawdata

Raw filter	Off
Elliptical filter	Off

### Geometry - Common

Slab group	1
Slabs	1
Position	L0.0 P4.7 H13.8 mm
Orientation	T > C-18.7
Phase enc. dir.	A >> P
Slab Scale	-10 %
Slices per slab	180
FoV read	220 mm
FoV phase	99.2 %
Slice thickness	0.85 mm
TR 1	56.6 ms
TR 2	2547 ms

### Geometry - AutoAlign

Slab group	1
Position	L0.0 P4.7 H13.8 mm
Orientation	T > C-18.7
Phase enc. dir.	A >> P
AutoAlign	---
Initial Position	L0.0 P4.7 H13.8
L	0.0 mm
P	4.7 mm
H	13.8 mm
Initial Rotation	0.00 deg
Initial Orientation	T > C
T > C	-18.7
> S	0.0

### Geometry - Saturation

Saturation mode	Standard
Fat suppr.	None

### Geometry - Tim Planning Suite

Set-n-Go Protocol	Off
Table position	H
Table position	0 mm
Inline Composing	Off

**System - Miscellaneous**

Positioning mode	FIX
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Coil Combine Mode	Sum of Squares
Save uncombined	Off
Matrix Optimization	Off
AutoAlign	---
Coil Select Mode	Default

**System - Adjustments**

B0 Shim mode	Brain
B1 Shim mode	TrueForm
Confirm freq. adjustment	Off
Assume Dominant Fat	Off
Assume Silicone	Off
Adjustment Tolerance	Auto

**System - Adjust Volume**

! Position	L0.0 P6.5 H15.0 mm
! Orientation	Sagittal
! Rotation	18.70 deg
! A >> P	167 mm
! F >> H	95 mm
! R >> L	133 mm
Reset	Off

**System - pTx Volumes**

B1 Shim mode	TrueForm
Excitation	Slab-sel.

**System - Tx/Rx**

Frequency 1H	297.178781 MHz
Correction factor	1
Gain	Low
Img. Scale Cor.	1.000
Reset	Off
! Ref. amplitude 1H	200.000 V

**Sequence - Part 1**

Introduction	On
Dimension	3D
Reordering	Linear
Contrasts	1
Echo spacing	1 ms
Bandwidth	1140 Hz/Px

**Sequence - Part 2**

EPI factor	48
Segmentation	1
RF pulse type	Normal
Gradient mode	Fast
Excitation	Slab-sel.
RF spoiling	On
Turbo factor	45

**Sequence - Special**

PATRef FA	5 deg
RF duration	380 us
RF BWT product	7

**Sequence - Special**

Ernst T1	1200 ms
PATRef prep. shots	100
Volume dummy shots	0
Dummy Measurements	0
ETL per RTEB	1
Invert PE	Off
Min. TE if PF	On
Echo Time Shift	On
Ramp Sampling	On
NORDIC	On
SVDPC	On
Sym VASO	Off
Dual-pol. EPI	On
Invert RO	On
Invert 3D	Off
Disable PF reco	Off
Disable PF reco	Off
Save sampling	Off
PE VComp	Off
Water Exc.	Binomial-11
External PC	per Series
FIDNavs	-none-
EPI rise time factor	1.20
Mosaic DICOMs	On
Modify Ice Config	On
G-factor map	Off
GRAPPA Regularization	10 10 <sup>-6</sup>
Var. FA /MAGEC	1

**Sequence - Assistant**

Mode	Off
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\\USER\FMRIF\[XT-ID:93-M-0170]\Renzo\20250415\_SAM\_mesovein\_fast\_WB\_struc\FAST\_FRISGO\_2p2\_OR

TA: 7:46 PM: FIX Voxel size: 2.2×2.2×2.2 mmPAT: 16 Rel. SNR: 1.00 : nih5k

### Properties

Prio recon	Off
Load images to viewer	On
Inline movie	Off
Auto store images	On
Load images to stamp segments	Off
Load images to graphic segments	Off
Auto open inline display	Off
Auto close inline display	Off
Start measurement without further preparation	Off
Wait for user to start	Off
Start measurements	Single measurement

### Routine

Slab group	1
Slabs	1
Position	L0.0 P10.5 H17.7 mm
Orientation	T > C-18.7
Phase enc. dir.	A >> P
AutoAlign	---
Slab Scale	-10 %
Slices per slab	64
FoV read	220 mm
FoV phase	100.0 %
Slice thickness	2.20 mm
TR 1	31.4 ms
TR 2	188 ms
TE 1	15.10 ms
Averages	1
Filter	None
Coil elements	AC

### Contrast - Common

TR 1	31.4 ms
TR 2	188 ms
TE 1	15.10 ms
Multi-echo spacing	27.6 ms
Magn. preparation	None
Flip angle	18 deg
Fat suppr.	None
Magn. Prep. Shots	1

### Contrast - Dynamic

Averages	1
Averaging mode	Long term
Reconstruction	Magnitude
Measurements	2402
Pause after meas.	0.0 s

### Resolution - Common

FoV read	220 mm
FoV phase	100.0 %
Slice thickness	2.20 mm
Base resolution	100
Phase resolution	100 %
Slice resolution	100 %
Phase partial Fourier	Off
Slice partial Fourier	6/8
Interpolation	Off

### Resolution - iPAT

PAT mode	CAIPIRINHA
Acc. factor PE	2
Ref. lines PE	80
Acc. factor 3D	8
Ref. lines 3D	36
CAIPI 3D Shift	3
Reference Scan Mode	GRE/dual-polar
CAIPI Mode (tooltip)	Skipped-CAIPI
Total PAT factor	16

### Resolution - Filter Image

Image Filter	Off
Distortion Corr.	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off

### Resolution - Filter Rawdata

Raw filter	Off
Elliptical filter	Off

### Geometry - Common

Slab group	1
Slabs	1
Position	L0.0 P10.5 H17.7 mm
Orientation	T > C-18.7
Phase enc. dir.	A >> P
Slab Scale	-10 %
Slices per slab	64
FoV read	220 mm
FoV phase	100.0 %
Slice thickness	2.20 mm
TR 1	31.4 ms
TR 2	188 ms

### Geometry - AutoAlign

Slab group	1
Position	L0.0 P10.5 H17.7 mm
Orientation	T > C-18.7
Phase enc. dir.	A >> P
AutoAlign	---
Initial Position	L0.0 P10.5 H17.7
L	0.0 mm
P	10.5 mm
H	17.7 mm
Initial Rotation	0.00 deg
Initial Orientation	T > C
T > C	-18.7
> S	0.0

### Geometry - Saturation

Saturation mode	Standard
Fat suppr.	None

### Geometry - Tim Planning Suite

Set-n-Go Protocol	Off
Table position	H
Table position	0 mm
Inline Composing	Off



**System - Miscellaneous**

Positioning mode	FIX
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Coil Combine Mode	Sum of Squares
Save uncombined	Off
Matrix Optimization	Off
AutoAlign	---
Coil Select Mode	Default

**System - Adjustments**

B0 Shim mode	Brain
B1 Shim mode	TrueForm
Confirm freq. adjustment	Off
Assume Dominant Fat	Off
Assume Silicone	Off
Adjustment Tolerance	Auto

**System - Adjust Volume**

! Position	L0.0 P6.5 H15.0 mm
! Orientation	Sagittal
! Rotation	18.70 deg
! A >> P	167 mm
! F >> H	95 mm
! R >> L	133 mm
Reset	Off

**System - pTx Volumes**

B1 Shim mode	TrueForm
Excitation	Slab-sel.

**System - Tx/Rx**

Frequency 1H	297.178781 MHz
Correction factor	1
Gain	Low
Img. Scale Cor.	1.000
Reset	Off
! Ref. amplitude 1H	200.000 V

**Sequence - Part 1**

Introduction	On
Dimension	3D
Reordering	Linear
Contrasts	1
Echo spacing	0.54 ms
Bandwidth	2500 Hz/Px

**Sequence - Part 2**

EPI factor	50
Segmentation	1
RF pulse type	Normal
Gradient mode	Fast
Excitation	Slab-sel.
RF spoiling	On
Turbo factor	6

**Sequence - Special**

PATRef FA	3 deg
RF duration	380 us
RF BWT product	12

**Sequence - Special**

Ernst T1	1200 ms
PATRef prep. shots	30
Volume dummy shots	0
Dummy Measurements	0
ETL per RTEB	1
CHECK FLIP ANGLE!	On
Invert PE	Off
Echo Time Shift	On
Ramp Sampling	On
NORDIC	On
SVDPC	On
Sym VASO	Off
Dual-pol. EPI	Off
Invert RO	Off
Invert 3D	Off
Disable PF reco	Off
Disable PF reco	Off
Save sampling	Off
PE VComp	Off
Water Exc.	Binomial-11
External PC	per Series
FIDNavs	-none-
EPI rise time factor	1.15
Mosaic DICOMs	On
Modify Ice Config	On
G-factor map	Off
GRAPPA Regularization	10 10 <sup>-6</sup>
Var. FA /MAGEC	1

**Sequence - Assistant**

Mode	Off
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\\USER\FMRIF\[XT-ID:93-M-0170]\Renzo\20250415\_SAM\_mesovein\_fast\_WB\_struc\FAST\_FRISGO\_2p2\_RO

TA: 7:46 PM: FIX Voxel size: 2.2×2.2×2.2 mmPAT: 16 Rel. SNR: 1.00 : nih5k

### Properties

Prio recon	Off
Load images to viewer	On
Inline movie	Off
Auto store images	On
Load images to stamp segments	Off
Load images to graphic segments	Off
Auto open inline display	Off
Auto close inline display	Off
Start measurement without further preparation	Off
Wait for user to start	Off
Start measurements	Single measurement

### Routine

Slab group	1
Slabs	1
Position	L0.0 P10.5 H17.7 mm
Orientation	T > C-18.7
Phase enc. dir.	A >> P
AutoAlign	---
Slab Scale	-10 %
Slices per slab	64
FoV read	220 mm
FoV phase	100.0 %
Slice thickness	2.20 mm
TR 1	31.4 ms
TR 2	188 ms
TE 1	15.10 ms
Averages	1
Filter	None
Coil elements	AC

### Contrast - Common

TR 1	31.4 ms
TR 2	188 ms
TE 1	15.10 ms
Multi-echo spacing	27.6 ms
Magn. preparation	None
Flip angle	18 deg
Fat suppr.	None
Magn. Prep. Shots	1

### Contrast - Dynamic

Averages	1
Averaging mode	Long term
Reconstruction	Magnitude
Measurements	2402
Pause after meas.	0.0 s

### Resolution - Common

FoV read	220 mm
FoV phase	100.0 %
Slice thickness	2.20 mm
Base resolution	100
Phase resolution	100 %
Slice resolution	100 %
Phase partial Fourier	Off
Slice partial Fourier	6/8
Interpolation	Off

### Resolution - iPAT

PAT mode	CAIPIRINHA
Acc. factor PE	2
Ref. lines PE	80
Acc. factor 3D	8
Ref. lines 3D	36
CAIPI 3D Shift	3
Reference Scan Mode	GRE/dual-polar
CAIPI Mode (tooltip)	Skipped-CAIPI
Total PAT factor	16

### Resolution - Filter Image

Image Filter	Off
Distortion Corr.	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off

### Resolution - Filter Rawdata

Raw filter	Off
Elliptical filter	Off

### Geometry - Common

Slab group	1
Slabs	1
Position	L0.0 P10.5 H17.7 mm
Orientation	T > C-18.7
Phase enc. dir.	A >> P
Slab Scale	-10 %
Slices per slab	64
FoV read	220 mm
FoV phase	100.0 %
Slice thickness	2.20 mm
TR 1	31.4 ms
TR 2	188 ms

### Geometry - AutoAlign

Slab group	1
Position	L0.0 P10.5 H17.7 mm
Orientation	T > C-18.7
Phase enc. dir.	A >> P
AutoAlign	---
Initial Position	L0.0 P10.5 H17.7
L	0.0 mm
P	10.5 mm
H	17.7 mm
Initial Rotation	0.00 deg
Initial Orientation	T > C
T > C	-18.7
> S	0.0

### Geometry - Saturation

Saturation mode	Standard
Fat suppr.	None

### Geometry - Tim Planning Suite

Set-n-Go Protocol	Off
Table position	H
Table position	0 mm
Inline Composing	Off

**System - Miscellaneous**

Positioning mode	FIX
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Coil Combine Mode	Sum of Squares
Save uncombined	Off
Matrix Optimization	Off
AutoAlign	---
Coil Select Mode	Default

**System - Adjustments**

B0 Shim mode	Brain
B1 Shim mode	TrueForm
Confirm freq. adjustment	Off
Assume Dominant Fat	Off
Assume Silicone	Off
Adjustment Tolerance	Auto

**System - Adjust Volume**

! Position	L0.0 P6.5 H15.0 mm
! Orientation	Sagittal
! Rotation	18.70 deg
! A >> P	167 mm
! F >> H	95 mm
! R >> L	133 mm
Reset	Off

**System - pTx Volumes**

B1 Shim mode	TrueForm
Excitation	Slab-sel.

**System - Tx/Rx**

Frequency 1H	297.178781 MHz
Correction factor	1
Gain	Low
Img. Scale Cor.	1.000
Reset	Off
! Ref. amplitude 1H	200.000 V

**Sequence - Part 1**

Introduction	On
Dimension	3D
Reordering	Linear
Contrasts	1
Echo spacing	0.54 ms
Bandwidth	2500 Hz/Px

**Sequence - Part 2**

EPI factor	50
Segmentation	1
RF pulse type	Normal
Gradient mode	Fast
Excitation	Slab-sel.
RF spoiling	On
Turbo factor	6

**Sequence - Special**

PATRef FA	3 deg
RF duration	380 us
RF BWT product	12

**Sequence - Special**

Ernst T1	1200 ms
PATRef prep. shots	30
Volume dummy shots	0
Dummy Measurements	0
ETL per RTEB	1
CHECK FLIP ANGLE!	On
Invert PE	Off
Echo Time Shift	On
Ramp Sampling	On
NORDIC	On
SVDPC	On
Sym VASO	Off
Dual-pol. EPI	Off
Invert RO	On
Invert 3D	Off
Disable PF reco	Off
Disable PF reco	Off
Save sampling	Off
PE VComp	Off
Water Exc.	Binomial-11
External PC	per Series
FIDNavs	-none-
EPI rise time factor	1.15
Mosaic DICOMs	On
Modify Ice Config	On
G-factor map	Off
GRAPPA Regularization	10 10 <sup>-6</sup>
Var. FA /MAGEC	1

**Sequence - Assistant**

Mode	Off
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\\USER\FMRIF\[XT-ID:93-M-0170]\Renzo\20250415\_SAM\_mesovein\_fast\_WB\_struc\uhr\_meso\_vein\_  
RO

TA: 6:56 PM: REF Voxel size: 0.3×0.3×0.3 mmPAT: 6 Rel. SNR: 1.00 : ep 668155d

### Properties

Prio recon	Off
Load images to viewer	On
Inline movie	Off
Auto store images	On
Load images to stamp segments	Off
Load images to graphic segments	Off
Auto open inline display	Off
Auto close inline display	Off
Start measurement without further preparation	Off
Wait for user to start	Off
Start measurements	Single measurement

### Routine

Slab group	1
Slabs	1
Position	L0.0 P11.7 H15.6 mm
Orientation	T > C-24.5
Phase enc. dir.	A >> P
AutoAlign	---
Slice oversampling	0.0 %
Slices per slab	380
FoV read	200 mm
FoV phase	100.0 %
Slice thickness	0.35 mm
TR	53.1 ms
Vol. TR	408.87 s
TE 1	9.94 ms
TE 2	25.14 ms
TE 3	40.34 ms
Averages	1
Multi-echo Shots	1
Filter	None
Coil elements	AC

### Contrast - Common

TR	53.1 ms
Vol. TR	408.87 s
TE 1	9.94 ms
TE 2	25.14 ms
TE 3	40.34 ms
Multi-echo spacing	15.20 ms
MTC	Off
Flip angle	15 deg
Fat suppr.	None

### Contrast - Dynamic

Averages	1
Averaging mode	Long term
Reconstruction	Magnitude
Measurements	1

### Resolution - Common

FoV read	200 mm
FoV phase	100.0 %
Slice thickness	0.35 mm
Base resolution	572
Phase resolution	100 %
Slice resolution	100 %

### Resolution - Common

Phase partial Fourier	Off
Slice partial Fourier	Off
Interpolation	Off

### Resolution - iPAT

PAT mode	CAIPIRINHA
Accel. factor PE	3
Ref. lines PE	24
Accel. factor 3D	2
Ref. lines 3D	36
Reordering Shift 3D	1
Reference scan mode	GRE/separate
CAIPI Trajectory	Skipped-CAIPI

### Resolution - Filter Image

Image Filter	Off
Distortion Corr.	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off

### Resolution - Filter Rawdata

Raw filter	Off
Elliptical filter	Off

### Geometry - Common

Slab group	1
Slabs	1
Position	L0.0 P11.7 H15.6 mm
Orientation	T > C-24.5
Phase enc. dir.	A >> P
Slice oversampling	0.0 %
Slices per slab	380
FoV read	200 mm
FoV phase	100.0 %
Slice thickness	0.35 mm
TR	53.1 ms
Vol. TR	408.87 s
Multi-echo Shots	1

### Geometry - AutoAlign

Slab group	1
Position	L0.0 P11.7 H15.6 mm
Orientation	T > C-24.5
Phase enc. dir.	A >> P
AutoAlign	---
Initial Position	L0.0 P11.7 H15.6
L	0.0 mm
P	11.7 mm
H	15.6 mm
Initial Rotation	0.00 deg
Initial Orientation	T > C
T > C	-24.5
> S	0.0

### Geometry - Saturation

Saturation mode	Standard
Fat suppr.	None

**Geometry - Tim Planning Suite**

Set-n-Go Protocol	Off
Table position	H
Table position	0 mm
Inline Composing	Off

**System - Miscellaneous**

Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Coil Combine Mode	Sum of Squares
Save uncombined	Off
Matrix Optimization	Off
AutoAlign	---
Coil Select Mode	Default

**System - Adjustments**

B0 Shim mode	Brain
B1 Shim mode	TrueForm
Confirm freq. adjustment	Off
Assume Dominant Fat	Off
Assume Silicone	Off
Adjustment Tolerance	Auto

**System - Adjust Volume**

! Position	L0.0 P6.5 H15.0 mm
! Orientation	Sagittal
! Rotation	18.70 deg
! A >> P	167 mm
! F >> H	95 mm
! R >> L	133 mm
Reset	Off

**System - pTx Volumes**

B1 Shim mode	TrueForm
Excitation	Slab-sel.

**System - Tx/Rx**

Frequency 1H	297.178781 MHz
Correction factor	1
Gain	High
Img. Scale Cor.	1.000
Reset	Off
! Ref. amplitude 1H	200.000 V

**Sequence - Part 1**

Introduction	On
Dimension	3D
Reordering	Linear
Contrasts	3
Echo spacing	2.52 ms
Bandwidth	546 Hz/Px

**Sequence - Part 2**

EPI factor	5
Segmentation	40
RF pulse type	Normal
Gradient mode	Fast
Excitation	Slab-sel.
RF spoiling	On

**Sequence - Special**

PAT ref. FA	6 deg
RF duration	1020 us
RF BWT product	30
Ernst T1	1200 ms
PATRef prep. shots	30
Volume dummy shots	100
Noise dummy shots	-1
CHECK FLIP ANGLE!	On
Integrated PC	Off
Invert PE	Off
Invert RO	Off
Water Exc.	-none-
Phase Correction	per Series
EPI rise time factor	1.10
Modify Ice Config	On
G-factor map	Off
Disable freq. adj.	Off
GRAPPA Regularization	10 /10^6
Slab Scale	0 %

**Sequence - Assistant**

Mode	Off
------	-----

\\USER\FMRIF\[XT-ID:93-M-0170]\Renzo\20250415\_SAM\_mesovein\_fast\_WB\_struc\uhr\_meso\_vein\_  
OR

TA: 6:56 PM: REF Voxel size: 0.3×0.3×0.3 mmPAT: 6 Rel. SNR: 1.00 : ep 668155d

### Properties

Prio recon	Off
Load images to viewer	On
Inline movie	Off
Auto store images	On
Load images to stamp segments	Off
Load images to graphic segments	Off
Auto open inline display	Off
Auto close inline display	Off
Start measurement without further preparation	Off
Wait for user to start	Off
Start measurements	Single measurement

### Routine

Slab group	1
Slabs	1
Position	L0.0 P11.7 H15.6 mm
Orientation	T > C-24.5
Phase enc. dir.	A >> P
AutoAlign	---
Slice oversampling	0.0 %
Slices per slab	380
FoV read	200 mm
FoV phase	100.0 %
Slice thickness	0.35 mm
TR	53.1 ms
Vol. TR	408.87 s
TE 1	9.94 ms
TE 2	25.14 ms
TE 3	40.34 ms
Averages	1
Multi-echo Shots	1
Filter	None
Coil elements	AC

### Contrast - Common

TR	53.1 ms
Vol. TR	408.87 s
TE 1	9.94 ms
TE 2	25.14 ms
TE 3	40.34 ms
Multi-echo spacing	15.20 ms
MTC	Off
Flip angle	15 deg
Fat suppr.	None

### Contrast - Dynamic

Averages	1
Averaging mode	Long term
Reconstruction	Magnitude
Measurements	1

### Resolution - Common

FoV read	200 mm
FoV phase	100.0 %
Slice thickness	0.35 mm
Base resolution	572
Phase resolution	100 %
Slice resolution	100 %

### Resolution - Common

Phase partial Fourier	Off
Slice partial Fourier	Off
Interpolation	Off

### Resolution - iPAT

PAT mode	CAIPIRINHA
Accel. factor PE	3
Ref. lines PE	24
Accel. factor 3D	2
Ref. lines 3D	36
Reordering Shift 3D	1
Reference scan mode	GRE/separate
CAIPI Trajectory	Skipped-CAIPI

### Resolution - Filter Image

Image Filter	Off
Distortion Corr.	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off

### Resolution - Filter Rawdata

Raw filter	Off
Elliptical filter	Off

### Geometry - Common

Slab group	1
Slabs	1
Position	L0.0 P11.7 H15.6 mm
Orientation	T > C-24.5
Phase enc. dir.	A >> P
Slice oversampling	0.0 %
Slices per slab	380
FoV read	200 mm
FoV phase	100.0 %
Slice thickness	0.35 mm
TR	53.1 ms
Vol. TR	408.87 s
Multi-echo Shots	1

### Geometry - AutoAlign

Slab group	1
Position	L0.0 P11.7 H15.6 mm
Orientation	T > C-24.5
Phase enc. dir.	A >> P
AutoAlign	---
Initial Position	L0.0 P11.7 H15.6
L	0.0 mm
P	11.7 mm
H	15.6 mm
Initial Rotation	0.00 deg
Initial Orientation	T > C
T > C	-24.5
> S	0.0

### Geometry - Saturation

Saturation mode	Standard
Fat suppr.	None

**Geometry - Tim Planning Suite**

Set-n-Go Protocol	Off
Table position	H
Table position	0 mm
Inline Composing	Off

**System - Miscellaneous**

Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Coil Combine Mode	Sum of Squares
Save uncombined	Off
Matrix Optimization	Off
AutoAlign	---
Coil Select Mode	Default

**System - Adjustments**

B0 Shim mode	Brain
B1 Shim mode	TrueForm
Confirm freq. adjustment	Off
Assume Dominant Fat	Off
Assume Silicone	Off
Adjustment Tolerance	Auto

**System - Adjust Volume**

! Position	L0.0 P6.5 H15.0 mm
! Orientation	Sagittal
! Rotation	18.70 deg
! A >> P	167 mm
! F >> H	95 mm
! R >> L	133 mm
Reset	Off

**System - pTx Volumes**

B1 Shim mode	TrueForm
Excitation	Slab-sel.

**System - Tx/Rx**

Frequency 1H	297.178781 MHz
Correction factor	1
Gain	High
Img. Scale Cor.	1.000
Reset	Off
! Ref. amplitude 1H	200.000 V

**Sequence - Part 1**

Introduction	On
Dimension	3D
Reordering	Linear
Contrasts	3
Echo spacing	2.52 ms
Bandwidth	546 Hz/Px

**Sequence - Part 2**

EPI factor	5
Segmentation	40
RF pulse type	Normal
Gradient mode	Fast
Excitation	Slab-sel.
RF spoiling	On

**Sequence - Special**

PAT ref. FA	6 deg
RF duration	1020 us
RF BWT product	30
Ernst T1	1200 ms
PATRef prep. shots	30
Volume dummy shots	100
Noise dummy shots	-1
CHECK FLIP ANGLE!	On
Integrated PC	Off
Invert PE	Off
Invert RO	On
Water Exc.	-none-
Phase Correction	per Series
EPI rise time factor	1.10
Modify Ice Config	On
G-factor map	Off
Disable freq. adj.	Off
GRAPPA Regularization	10 /10^6
Slab Scale	0 %

**Sequence - Assistant**

Mode	Off
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\\USER\FMRIF\[XT-ID:93-M-0170]\Renzo\20250415_SAM_mesovein_fast_WB_struc\MPRAGE UP 0p75
TA: 7:17 PM: REF Voxel size: 0.8×0.8×0.8 mmPAT: 2 Rel. SNR: 1.00 : ns_tfl

**Properties**

Prio recon	Off
Load images to viewer	On
Inline movie	Off
Auto store images	On
Load images to stamp segments	Off
Load images to graphic segments	Off
Auto open inline display	Off
Auto close inline display	Off
Start measurement without further preparation	Off
Wait for user to start	Off
Start measurements	Single measurement

**Routine**

Slab group	1
Slabs	1
Dist. factor	50 %
Position	R3.0 A15.6 F32.6 mm
Orientation	Sagittal
Phase enc. dir.	A >> P
AutoAlign	---
Phase oversampling	0 %
Slice oversampling	0.0 %
Slices per slab	256
FoV read	256 mm
FoV phase	100.0 %
Slice thickness	0.75 mm
TR	2600.0 ms
TE	3.56 ms
Averages	1
Concatenations	1
Filter	None
Coil elements	AC

**Contrast - Common**

TR	2600.0 ms
TE	3.56 ms
Magn. preparation	Non-sel. IR
TI	1220 ms
Flip angle	5.0 deg
Fat suppr.	None
Water suppr.	None

**Contrast - Dynamic**

Averages	1
Averaging mode	Long term
Reconstruction	Magnitude
Measurements	1
Multiple series	Each measurement

**Resolution - Common**

FoV read	256 mm
FoV phase	100.0 %
Slice thickness	0.75 mm
Base resolution	340
Phase resolution	100 %
Slice resolution	100 %
Phase partial Fourier	7/8
Slice partial Fourier	Off

**Resolution - Common**

Interpolation	Off
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**Resolution - iPAT**

PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	40
Accel. factor 3D	1
Reference scan mode	Integrated

**Resolution - Filter Image**

Image Filter	Off
Distortion Corr.	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off

**Resolution - Filter Rawdata**

Raw filter	Off
Elliptical filter	Off

**Geometry - Common**

Slab group	1
Slabs	1
Dist. factor	50 %
Position	R3.0 A15.6 F32.6 mm
Orientation	Sagittal
Phase enc. dir.	A >> P
Slice oversampling	0.0 %
Slices per slab	256
FoV read	256 mm
FoV phase	100.0 %
Slice thickness	0.75 mm
TR	2600.0 ms
Multi-slice mode	Single shot
Series	Interleaved
Concatenations	1

**Geometry - AutoAlign**

Slab group	1
Position	R3.0 A15.6 F32.6 mm
Orientation	Sagittal
Phase enc. dir.	A >> P
AutoAlign	---
Initial Position	R3.0 A15.6 F32.6
R	3.0 mm
A	15.6 mm
F	32.6 mm
Initial Rotation	0.00 deg
Initial Orientation	Sagittal

**Geometry - Navigator****Geometry - Tim Planning Suite**

Set-n-Go Protocol	Off
Table position	H
Table position	0 mm
Inline Composing	Off



**System - Miscellaneous**

Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Coil Combine Mode	Adaptive Combine
Save uncombined	Off
Matrix Optimization	Off
AutoAlign	---
Coil Select Mode	Default

**System - Adjustments**

B0 Shim mode	Brain
B1 Shim mode	TrueForm
Confirm freq. adjustment	Off
Assume Dominant Fat	Off
Assume Silicone	Off
Adjustment Tolerance	Auto

**System - Adjust Volume**

! Position	L0.0 P6.5 H15.0 mm
! Orientation	Sagittal
! Rotation	18.70 deg
! A >> P	167 mm
! F >> H	95 mm
! R >> L	133 mm
Reset	Off

**System - pTx Volumes**

B1 Shim mode	TrueForm
Excitation	Non-sel.

**System - Tx/Rx**

Frequency 1H	297.178781 MHz
Correction factor	1
Gain	High
Img. Scale Cor.	1.000
Reset	Off
! Ref. amplitude 1H	220.000 V

**Physio - Signal1**

1st Signal/Mode	None
TR	2600.0 ms
Concatenations	1

**Physio - Cardiac**

Magn. preparation	Non-sel. IR
TI	1220 ms
Fat suppr.	None
Dark blood	Off
FoV read	256 mm
FoV phase	100.0 %
Phase resolution	100 %

**Physio - PACE**

Resp. control	Off
Concatenations	1

**Inline - Common**

Subtract	Off
Measurements	1

**Inline - Common**

StdDev	Off
Save original images	On

**Inline - MIP**

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

**Inline - Composing**

Inline Composing	Off
Distortion Corr.	Off

**Inline - MapIt**

Save original images	On
MapIt	None
Flip angle	5.0 deg
Measurements	1
TR	2600.0 ms
TE	3.56 ms

**Sequence - Part 1**

Introduction	Off
Dimension	3D
Elliptical scanning	Off
Reordering	Linear
Asymmetric echo	Off
Flow comp.	No
Multi-slice mode	Single shot
Echo spacing	8.1 ms
Bandwidth	190 Hz/Px

**Sequence - Part 2**

Gradient mode	Normal
Excitation	Non-sel.
RF spoiling	On
Incr. Gradient spoiling	Off
Turbo factor	256

**Sequence - pTX Pulses**

Universal Pulse	1
Pulse type	Excitation
Trajectory	External

**Sequence - Assistant**

Mode	Off
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\\USER\FMRIF\[XT-ID:93-M-0170]\Renzo\20250415\_SAM\_mesovein\_fast\_WB\_struct\t1\_mp2rage\_sag\_p3\_0.75mm

TA: 8:50 PM: FIX Voxel size: 0.8×0.8×0.8 mmPAT: 3 Rel. SNR: 1.00 : tfl

### Properties

Prio recon	Off
Load images to viewer	On
Inline movie	Off
Auto store images	On
Load images to stamp segments	Off
Load images to graphic segments	Off
Auto open inline display	Off
Auto close inline display	Off
Start measurement without further preparation	Off
Wait for user to start	Off
Start measurements	Single measurement

### Routine

Slab group	1
Slabs	1
Dist. factor	50 %
Position	R3.0 A10.4 F34.5 mm
Orientation	Sagittal
Phase enc. dir.	A >> P
AutoAlign	---
Phase oversampling	0 %
Slice oversampling	8.3 %
Slices per slab	192
FoV read	240 mm
FoV phase	93.8 %
Slice thickness	0.75 mm
TR	4300.0 ms
TE	2.27 ms
Averages	1
Concatenations	1
Filter	None
Coil elements	AC

### Contrast - Common

TR	4300.0 ms
TE	2.27 ms
Magn. preparation	Non-sel. IR
TI 1	1000 ms
TI 2	3200 ms
Flip angle 1	4.0 deg
Flip angle 2	4.0 deg
Fat suppr.	Water excit. fast
Water suppr.	None

### Contrast - Dynamic

Averages	1
Averaging mode	Long term
Reconstruction	Magnitude
Measurements	1
Multiple series	Each measurement

### Resolution - Common

FoV read	240 mm
FoV phase	93.8 %
Slice thickness	0.75 mm
Base resolution	320
Phase resolution	100 %
Slice resolution	100 %

### Resolution - Common

Phase partial Fourier	Off
Slice partial Fourier	6/8
Interpolation	Off

### Resolution - iPAT

PAT mode	GRAPPA
Accel. factor PE	3
Ref. lines PE	36
Accel. factor 3D	1
Reference scan mode	Integrated

### Resolution - Filter Image

Image Filter	Off
Distortion Corr.	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off

### Resolution - Filter Rawdata

Raw filter	Off
Elliptical filter	Off

### Geometry - Common

Slab group	1
Slabs	1
Dist. factor	50 %
Position	R3.0 A10.4 F34.5 mm
Orientation	Sagittal
Phase enc. dir.	A >> P
Slice oversampling	8.3 %
Slices per slab	192
FoV read	240 mm
FoV phase	93.8 %
Slice thickness	0.75 mm
TR	4300.0 ms
Multi-slice mode	Single shot
Series	Interleaved
Concatenations	1

### Geometry - AutoAlign

Slab group	1
Position	R3.0 A10.4 F34.5 mm
Orientation	Sagittal
Phase enc. dir.	A >> P
AutoAlign	---
Initial Position	R3.0 A10.4 F34.5
R	3.0 mm
A	10.4 mm
F	34.5 mm
Initial Rotation	0.00 deg
Initial Orientation	Sagittal

### Geometry - Navigator

### Geometry - Tim Planning Suite

Set-n-Go Protocol	Off
Table position	H
Table position	0 mm

**Geometry - Tim Planning Suite**

Inline Composing	Off
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**System - Miscellaneous**

Positioning mode	FIX
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Coil Combine Mode	Sum of Squares
Save uncombined	Off
Matrix Optimization	Off
AutoAlign	---
Coil Select Mode	Default

**System - Adjustments**

B0 Shim mode	Brain
B1 Shim mode	TrueForm
Confirm freq. adjustment	Off
Assume Dominant Fat	Off
Assume Silicone	Off
Adjustment Tolerance	Auto

**System - Adjust Volume**

! Position	L0.0 P6.5 H15.0 mm
! Orientation	Sagittal
! Rotation	18.70 deg
! A >> P	167 mm
! F >> H	95 mm
! R >> L	133 mm
Reset	Off

**System - pTx Volumes**

B1 Shim mode	TrueForm
Excitation	Non-sel.

**System - Tx/Rx**

Frequency 1H	297.178781 MHz
Correction factor	1
Gain	High
Img. Scale Cor.	1.000
Reset	Off
! Ref. amplitude 1H	220.000 V

**Physio - Signal1**

1st Signal/Mode	None
TR	4300.0 ms
Concatenations	1

**Physio - Cardiac**

Magn. preparation	Non-sel. IR
TI 1	1000 ms
TI 2	3200 ms
Fat suppr.	Water excit. fast
Dark blood	Off
FoV read	240 mm
FoV phase	93.8 %
Phase resolution	100 %

**Physio - PACE**

Resp. control	Off
Concatenations	1

**Inline - Common**

Subtract	Off
Measurements	1
StdDev	Off
Save original images	On

**Inline - MIP**

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

**Inline - Composing**

Inline Composing	Off
Distortion Corr.	Off

**Inline - MapIt**

Save original images	On
MapIt	T1 map
Flip angle 1	4.0 deg
Flip angle 2	4.0 deg
Measurements	1
TR	4300.0 ms
TE	2.27 ms

**Sequence - Part 1**

Introduction	On
Dimension	3D
Elliptical scanning	Off
Reordering	Linear
Asymmetric echo	Allowed
Flow comp.	No
Multi-slice mode	Single shot
Echo spacing	7.2 ms
Bandwidth	200 Hz/Px

**Sequence - Part 2**

RF pulse type	Fast
Gradient mode	Fast*
Excitation	Non-sel.
RF spoiling	On
Incr. Gradient spoiling	Off
Turbo factor	156

**Sequence - Assistant**

Mode	Off
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