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\MARTINOS DEVELOPER

HUBER

setting\_up\_higher\_resmesoveins

TOF\_4\_FARUK

TOF-MRA\_0p3\_saskia\_protocol4Faruk

TOF\_MRA\_300x500micron

\\MARTINOS DEVELOPER\\HUBER\\setting_up_higher_resmesoveins\\TOF_4_FARUK\\TOF-MRA_0p3_saskia_protocol4Faruk
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TA: 7:52 min Coil Selection: Manual Voxel Size: 0.3x0.3x0.3 mm <sup>3</sup> Acc:: 3 Rel. SNR: 1.00
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**Properties**

Start measurement without further preparation	On
Wait for User to Start	Off
Start measurements	Single Measurement
Prio Recon	Off
Auto Open Inline Display	Off
Auto Close Inline Display	Off
Load Images to MR View&GO	On
Auto Store Images	On
Disable auto transfer to PACS	Off
Load Images to Stamp Segments	Off
Load Images to Graphic Segments	Off
Graphic segment	Default
Inline Movie	Off

**Contrast - Dynamic**

Dynamic Mode	Standard
Measurements	1
Multiple Series	Each Measurement
Reordering	Linear

**Resolution - Common**

FOV Read	204 mm
FOV Phase	74.4 %
Slice Thickness	0.30 mm
Base Resolution	672
Phase Resolution	100 %
Slice Resolution	100 %
Trajectory	Cartesian
Interpolation	Off

**Routine**

Slab Group	1
Slabs	1
Distance Factor	-4 %
Position	R0.6 P17.2 F4.5 mm
Orientation	C > T-38.3 > S2.0
Phase Encoding Dir.	R >> L
Slices per Slab	80
Phase Oversampling	5 %
Slice Oversampling	20.0 %
FOV Read	204 mm
FOV Phase	74.4 %
Slice Thickness	0.30 mm
TR	24.96 ms
TE 1	7.09 ms
TE 2	12.99 ms
Averages	1
Concatenations	1
AutoAlign	---
Coil Elements	AC

**Resolution - Acceleration**

Acceleration Mode	GRAPPA
Reference Scans	Integrated
Acceleration Factor PE	3
Reference Lines PE	33
Acceleration Factor 3D	1
Deep Resolve	Off
Phase Partial Fourier	Off
Slice Partial Fourier	Off
Asymmetric Echo	Strong
Elliptical Scanning	Off

**Resolution - Filter**

Raw Filter	Off
Elliptical Filter	Off
POCS	Off
Distortion Correction	2D
Normalize	Off
Image Filter	Off

**Contrast - Common**

TR	24.96 ms
TE 1	7.09 ms
TE 2	12.99 ms
Magn. Preparation	None
Flip Angle Mode	Constant
Flip Angle	18 deg
Fat-Water Contrast	Standard
Dark Blood	Off
Contrasts	2
Wrap-up Magn.	None
Reconstruction	Magnitude

**Geometry - Common**

Slab Group	1
Slabs	1
Distance Factor	-4 %
Position	R0.6 P17.2 F4.5 mm
Orientation	C > T-38.3 > S2.0
Phase Encoding Dir.	R >> L
Slices per Slab	80
Phase Oversampling	5 %
Slice Oversampling	20.0 %
FOV Read	204 mm
FOV Phase	74.4 %
Slice Thickness	0.30 mm
TR	24.96 ms

**Geometry - Common**

Multi-Slice Mode	Sequential
Series	Descending
Concatenations	1

**Geometry - AutoAlign**

Slab Group	1
Position	R0.6 P17.2 F4.5 mm
Orientation	C > T-38.3 > S2.0
Phase Encoding Dir.	R >> L
AutoAlign	---
Initial Position	R0.6 P17.2 F4.5
R	0.6 mm
P	17.2 mm
F	4.5 mm
Initial Orientation	C > T
C > T	-38.30
> S	2.00
Initial Rotation	0.00 deg

**Geometry - Navigator****Geometry - Saturation**

Special Saturation	None
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**Geometry - Tim Planning Suite**

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

**System - Miscellaneous**

Coil Selection	Manual
Radial Sorting	Off
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Coil Combination	Sum of Squares
Matrix Optimization	Off

**System - Adjustments**

Adjustment Strategy	Standard
B0 Shim	Brain
B1 Shim	TrueForm
Adjustment Tolerance	Auto
Confirm Frequency	Never
Assume Silicone	Off

**System - Adjust Volume**

! Position	R0.6 P17.2 F4.5 mm
! Orientation	C > T-38.3 > S2.0
! Rotation	0.00 deg
! R >> L	160 mm
! F >> H	160 mm
! A >> P	26 mm

**System - Adjust Volume**

Reset	Off
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**System - pTx**

B1 Shim	TrueForm
Excitation	Slab-sel.

**System - Tx/Rx**

Frequency 1H	297.117813 MHz
? Ref. Amplitude 1H	0.000 V
Reset	Off
Correction Factor	1.00
Image Scaling	1.000

**Physio - Signal**

1st Signal/Mode	None
TR	24.96 ms
Segments	1
Concatenations	1

**Physio - Cardiac**

Tagging	None
Fat-Water Contrast	Standard
Magn. Preparation	None
Dark Blood	Off
FOV Read	204 mm
FOV Phase	74.4 %
Phase Resolution	100 %
Cine	Off
Trajectory	Cartesian
Dummy Heartbeats	1

**Physio - PACE**

Resp. Control	Off
Concatenations	1

**Inline - Subtraction**

Subtract	Off
Measurements	1
StdDev	Off
Save Original Images	On

**Inline - Cardiac**

Inline Evaluation	Off
Magn. Preparation	None
Save Original Images	On
Contrasts	2
TE 1	7.09 ms
TE 2	12.99 ms
TR	24.96 ms

**Inline - MIP**

MIP Sag	On
MIP Cor	On
MIP Tra	On

**Inline - MIP**

MIP Time	Off
Radial MIP	Off
Save Original Images	On
MPR Sag	Off
MPR Cor	Off
MPR Tra	Off

**Inline - Composing****Sequence - Part 1**

Sequence Name	fl_r
Dimension	3D
Sequence Type	Gre
Excitation	Slab-sel.
RF Pulse Type	Normal
Readout Mode	Monopolar
Gradient Mode	Normal*
Flow Compensation 1	Slice/Read
Flow Compensation 2	None
Reordering	Linear
Bandwidth 1	248 Hz/Px
Bandwidth 2	248 Hz/Px
Echo Spacing	17.92 ms
Asymmetric Echo	Strong
Optimization	None
Define	Segments
Segments	1

**Sequence - Part 2**

Introduction	Off
RF Spoiling	On
Phase Enc. Rewinder	On

**Sequence - Assistant**

SAR Assistant	Off
Allowed Delay	0 s
Optimization	None

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cron

TA: 15:26 min Coil Selection: Auto Voxel Size: 0.2x0.2x0.3 mm<sup>3</sup> Acc:: 3 Rel. SNR: 1.00

## Properties

Start measurement without further preparation	On
Wait for User to Start	Off
Start measurements	Single Measurement
Prio Recon	Off
Auto Open Inline Display	Off
Auto Close Inline Display	Off
Load Images to MR View&GO	On
Auto Store Images	On
Disable auto transfer to PACS	Off
Load Images to Stamp Segments	Off
Load Images to Graphic Segments	Off
Graphic segment	Default
Inline Movie	Off

## Routine

Slab Group	1
Slabs	8
Distance Factor	-20 %
Position	L1.0 A11.2 H3.8 mm
Orientation	T > C-6.0 > S-1.6
Phase Encoding Dir.	R >> L
Slices per Slab	40
Phase Oversampling	0 %
Slice Oversampling	20.0 %
FOV Read	192 mm
FOV Phase	100.0 %
Slice Thickness	0.25 mm
Base Resolution	640
Phase Resolution	100 %
Slice Resolution	50 %
Trajectory	Cartesian
Interpolation	2.00

## Contrast - Common

TR	20.00 ms
TE	4.03 ms
TD	0.00 ms
MTC	Off
Magn. Preparation	None
Flip Angle Mode	Constant
Flip Angle	18 deg
Fat-Water Contrast	Standard
Dark Blood	Off
Contrasts	1
Wrap-up Magn.	None
Reconstruction	Magnitude

## Contrast - Dynamic

Dynamic Mode	Standard
Measurements	1
Multiple Series	Each Measurement
Reordering	Linear

## Contrast - Angio

Flow Direction	F >> H
TONE Ramp	70 %

## Resolution - Common

FOV Read	192 mm
FOV Phase	100.0 %
Slice Thickness	0.25 mm
Base Resolution	640
Phase Resolution	100 %
Slice Resolution	50 %
Trajectory	Cartesian
Interpolation	2.00

## Resolution - Acceleration

Acceleration Mode	GRAPPA
Reference Scans	Integrated
Acceleration Factor PE	3
Reference Lines PE	33
Acceleration Factor 3D	1
Deep Resolve	Off
Phase Partial Fourier	Off
Slice Partial Fourier	Off
Asymmetric Echo	Weak
Elliptical Scanning	Off

## Resolution - Filter

Raw Filter	Off
Elliptical Filter	Off
POCS	Off
Distortion Correction	2D
Normalize	B1 Filter
Image Filter	Off

## Geometry - Common

Slab Group	1
Slabs	8
Distance Factor	-20 %
Position	L1.0 A11.2 H3.8 mm
Orientation	T > C-6.0 > S-1.6
Phase Encoding Dir.	R >> L
Slices per Slab	40
Phase Oversampling	0 %
Slice Oversampling	20.0 %

**Geometry - Common**

FOV Read	192 mm
FOV Phase	100.0 %
Slice Thickness	0.25 mm
TR	20.00 ms
Multi-Slice Mode	Sequential
Series	Descending
Concatenations	8

**System - Adjust Volume**

Position	L1.0 A11.2 H3.8 mm
Orientation	T > C-6.0 > S-1.6
Rotation	86.47 deg
R >> L	192 mm
A >> P	192 mm
F >> H	66 mm
Reset	Off

**Geometry - AutoAlign**

Slab Group	1
Position	L1.0 A11.2 H3.8 mm
Orientation	T > C-6.0 > S-1.6
Phase Encoding Dir.	R >> L
AutoAlign	Head > Brain
Initial Position	L0.0 A0.3 F0.7
L	0.0 mm
A	0.3 mm
F	0.7 mm
Initial Orientation	T > C
T > C	-1.50
> S	0.00
Initial Rotation	89.99 deg

**Geometry - Navigator****Geometry - Saturation**

Special Saturation	None
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**Geometry - Tim Planning Suite**

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

**System - Miscellaneous**

Coil Selection	Auto Coil Select
Radial Sorting	Off
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Coil Combination	Sum of Squares
Matrix Optimization	Off
Coil Focus	Flat

**System - Adjustments**

Adjustment Strategy	Standard
B0 Shim	Brain
B1 Shim	TrueForm
Adjustment Tolerance	Auto
Adjust with Body Coil	Off
Confirm Frequency	Never
Assume Silicone	Off

**System - pTx**

B1 Shim	TrueForm
Excitation	TONE

**System - Tx/Rx**

Frequency 1H	297.117813 MHz
? Ref. Amplitude 1H	0.000 V
Reset	Off
Image Scaling	1.000

**Physio - Signal**

1st Signal/Mode	None
TR	20.00 ms
Segments	1
Concatenations	8

**Physio - Cardiac**

Tagging	None
Fat-Water Contrast	Standard
Magn. Preparation	None
Dark Blood	Off
FOV Read	192 mm
FOV Phase	100.0 %
Phase Resolution	100 %
Cine	Off
Trajectory	Cartesian
Dummy Heartbeats	1

**Physio - PACE**

Resp. Control	Off
Concatenations	8

**Inline - Subtraction**

Subtract	Off
Measurements	1
StdDev	Off
Save Original Images	On

**Inline - Cardiac**

Inline Evaluation	Off
Magn. Preparation	None
Save Original Images	On
Contrasts	1
TE	4.03 ms
TR	20.00 ms

**Inline - MIP**

MIP Sag	On
MIP Cor	On
MIP Tra	On
MIP Time	Off
Radial MIP	Off
Save Original Images	On
MPR Sag	Off
MPR Cor	Off
MPR Tra	Off

**Inline - Composing****Sequence - Part 1**

Sequence Name	fl_r
Dimension	3D
Sequence Type	Gre
Excitation	TONE
RF Pulse Type	Normal
Gradient Mode	Fast
Flow Compensation	Slice/Read
Reordering	Linear
Bandwidth	163 Hz/Px
Echo Spacing	10.66 ms
Asymmetric Echo	Weak
Optimization	None
Define	Segments
Segments	1

**Sequence - Part 2**

Introduction	Off
RF Spoiling	On
Phase Enc. Rewinder	On

**Sequence - Assistant**

SAR Assistant	Off
Allowed Delay	0 s
Optimization	None