# \\USER\WBIC Protocols Ready\Protocol 461\FDL\_MRS\_20210415\rslh\_ep3d\_vaso\_ma4a\_TReff4s\_3 0sl\_Run1

TA: 10:54 PM: FIX Voxel size: 0.8×0.8×0.9 mmPAT: 3 Rel. SNR: 1.00 : 0c0b7b7

#### **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                        | On                 |
| Start measurements                            | Single measurement |

#### Routine

| Slab group       | 1                    |
|------------------|----------------------|
| Slabs            | 1                    |
| Position         | R0.1 P9.8 H81.4 mm   |
| Orientation      | C > T-37.0           |
| Phase enc. dir.  | H >>> F              |
| AutoAlign        |                      |
| Slab Scale       | 0 %                  |
| Slices per slab  | 30                   |
| FoV read         | 150 mm               |
| FoV phase        | 100.0 %              |
| Slice thickness  | 0.90 mm              |
| TR 1             | 57.3 ms              |
| TR 2             | 4381 ms              |
| TE 1             | 19.30 ms             |
| Averages         | 1                    |
| Multi-echo Shots | 1                    |
| Filter           | Distortion Corr.(3D) |
| Coil elements    | A32                  |

#### **Contrast - Common**

| TR 1               | 57.3 ms         |
|--------------------|-----------------|
| TR 2               | 4381 ms         |
| TE 1               | 19.30 ms        |
| Multi-echo spacing | 51.88 ms        |
| Magn. preparation  | Non-sel. HSN IR |
| TI 1               | 1519.5 ms       |
| TI 2               | 3238.5 ms       |
| Flip angle         | 60 deg          |
| Fat suppr.         | Fat sat.        |
| Magn. Prep. Shots  | 1               |

#### **Contrast - Dynamic**

| Averages          | 1         |
|-------------------|-----------|
| Averaging mode    | Long term |
| Reconstruction    | Magnitude |
| Measurements      | 146       |
| Pause after meas. | 0.0 s     |

#### **Resolution - Common**

| FoV read         | 150 mm  |
|------------------|---------|
| FoV phase        | 100.0 % |
| Slice thickness  | 0.90 mm |
| Base resolution  | 188     |
| Phase resolution | 100 %   |
| Slice resolution | 100 %   |

#### **Resolution - Common**

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

#### **Resolution - iPAT**

| PAT mode            | CAIPIRINHA   |
|---------------------|--------------|
| Acc. factor PE      | 3            |
| Ref. lines PE       | 45           |
| Acc. factor 3D      | 1            |
| Ref. lines 3D       | 24           |
| CAIPI 3D Shift      | 0            |
| Reference Scan Mode | GRE/separate |
| CAIPIRINHA mode     | Free         |

#### **Resolution - Filter Image**

| Image Filter      | Off |
|-------------------|-----|
| Distortion Corr.  | On  |
| Mode              | 3D  |
| Unfiltered images | 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         | R0.1 P9.8 H81.4 mm |
| Orientation      | C > T-37.0         |
| Phase enc. dir.  | H >>> F            |
| Slab Scale       | 0 %                |
| Slices per slab  | 30                 |
| FoV read         | 150 mm             |
| FoV phase        | 100.0 %            |
| Slice thickness  | 0.90 mm            |
| TR 1             | 57.3 ms            |
| TR 2             | 4381 ms            |
| Multi-slice mode | Interleaved        |
| Series           | Ascending          |
| Multi-echo Shots | 1                  |

## Geometry - AutoAlign

| Slab group          | 1                  |
|---------------------|--------------------|
| Position            | R0.1 P9.8 H81.4 mm |
| Orientation         | C > T-37.0         |
| Phase enc. dir.     | H >> F             |
| AutoAlign           |                    |
| Initial Position    | R0.1 P9.8 H36.4    |
| R                   | 0.1 mm             |
| Р                   | 9.8 mm             |
| Н                   | 36.4 mm            |
| Initial Rotation    | -90.00 deg         |
| Initial Orientation | C > T              |
| C > T               | -37.0              |
| > S                 | 0.0                |

## **Geometry - Saturation**

| Saturation mode | Standard |
|-----------------|----------|
| Fat suppr.      | Fat sat. |

## **Geometry - Tim Planning Suite**

| Set-n-Go Protocol | Off   |
|-------------------|-------|
| Table position    | Н     |
| Table position    | 45 mm |
| Inline Composing  | Off   |

#### **System - Miscellaneous**

| Positioning mode    | FIX            |
|---------------------|----------------|
| Table position      | Н              |
| Table position      | 45 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 A20.2 H72.5 mm |
|---------------|---------------------|
| ! Orientation | T > C-24.4          |
| ! Rotation    | 0.00 deg            |
| ! A >> P      | 171 mm              |
| !R>>L         | 154 mm              |
| ! F >> H      | 132 mm              |
| Reset         | Off                 |

## System - Tx/Rx

| Frequency 1H        | 297.200073 MHz |
|---------------------|----------------|
| Correction factor   | 1              |
| Gain                | Low            |
| Img. Scale Cor.     | 1.000          |
| Reset               | Off            |
| ? Ref. amplitude 1H | 0.000 V        |

## Sequence - Part 1

| Introduction     | On          |
|------------------|-------------|
| Dimension        | 3D          |
| Reordering       | Linear      |
| Asymmetric echo  | Off         |
| Contrasts        | 1           |
| Multi-slice mode | Interleaved |
| Echo spacing     | 1.08 ms     |
| Bandwidth        | 1064 Hz/Px  |

## Sequence - Part 2

| EPI factor    | 47     |
|---------------|--------|
| Segmentation  | 1      |
| RF pulse type | Normal |
| Gradient mode | Fast   |

## Sequence - Part 2

| Excitation   | Slab-sel. |
|--------------|-----------|
| RF spoiling  | On        |
| Turbo factor | 30        |

## Sequence - Special

| PATRef FA            | 3 deg      |
|----------------------|------------|
| RF duration          | 2540 us    |
| RF BWT product       | 24         |
| Ernst T1             | 1200 ms    |
| PATRef prep. shots   | 10         |
| Volume dummy shots   | 0          |
| Dummy Measurements   | 0          |
| PATRef averages      | 2          |
| ETL per RTEB         | 1          |
| CHECK FLIP ANGLE!    | On         |
| Invert PE            | Off        |
| Min. TE if PF        | On         |
| Echo Time Shift      | On         |
| Invert 3D            | Off        |
| Invert RO            | Off        |
| Alternate RO         | Off        |
| Disable PF reco      | Off        |
| Ramp Sampling        | On         |
| Disable PF reco      | Off        |
| Save sampling        | Off        |
| PE VComp             | Off        |
| Water Exc.           | -none-     |
| External PC          | per Series |
| Saturation RF        | per Shot   |
| FIDNavs              | -none-     |
| EPI rise time factor | 1.10       |
| Mosaic DICOMs        | On         |
| Modify IcePAT        | Off        |
| HSN RF power scale   | 3.00       |
| Inversion Delay      | 650 ms     |
| Relaxation Delay     | 0 ms       |
| Var. FA /MAGEC       | 4          |

#### Sequence - Assistant

| Mode | Off |  |
|------|-----|--|