# CARDIAC BASIC ANATOMY AND FUNCTION 3.0T

## INSTRUCTIONS AND PATIENT PREPARATION

| | |
|---|---|
| **Instructions** | • Cardiac vector gating<br>• If coronaries are to be evaluated, reduce slice thickness to 5 mm and skip 0 mm for Double IR and Triple IR<br>• Respiratory bellows<br>• Breath hold all scans on expiration |
| **Common Indications** | Ischemic and non-ischemic cardiomyopathy (CMP) |
| **Position** | Supine |
| **Coil** | 32 channel Torso, GEMS Body Array, or Air Coil |
| **Landmark** | Nipple Line |

## CONTRAST AGENT PARAMETERS

| Contrast Agents | Dose | Injection Rate | Dose Timing Method and Scan Delay |
|---|---|---|---|
| **Gadopiclenol (VUEWAY)** | 0.075 mmol/kg up to a calculated volume of 10 mL | 4 mL/sec | Injected during Perfusion. Consider injecting 1/3 of the contrast for Perfusion and after the scan is finished inject the rest at a rate of 1 mL/sec |
| **Saline Flush** | 50 mL | 4 mL/sec | Immediately following gadolinium |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Comments** | Breath hold | 3 Slice Mid Vent or<br>if for Right Vent evaluation, then full stack copy and paste to acquire approx.<br>2 channel and<br>4 channel locs | Short Axis,<br>Double Oblique,<br>Left Vent,<br>Full Stack | Long Axis Views.<br>2 channel<br>3 channel<br>4 channel<br>3 Slices non-contiguous | Start scan, as soon as images start to appear, inject contrast at 4 mL/sec, once you visualize contrast have patient hold their breath for as long as they can | Inject contrast then wait<br>10 min for MDE.<br>PREP TIME<br>SCOUT--Use to determine TI time for MDE | 10-45 min after injection. Delayed enhancement Short Axis and Long Axis views | Optional: 10-45 min after injection. Delayed enhancement Short Axis and Long Axis views | Optional: 10-45 min after injection. Delayed enhancement Short Axis and Long Axis views | Blood suppression must be done pre contrast | Blood suppression must be done pre contrast fat nulling |

## IMAGING PARAMETERS

| Scan Description | 3PL LOCALIZER | AXIAL Gated CINE | SA OBLIQUE Gated CINE | LA OBLIQUE Gated CINE | Optional: OBLIQUE Short Axis Perfusion | OBLIQUE 2D CINE IR | OBLIQUE Viability | OBLIQUE SSh Phase Sensitive Viability | OBLIQUE Phase Sensitive Viability | Optional: OBLIQUE Double IR Gated T1 | Optional: OBLIQUE Double IR Gated T2 Fat |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Mode** | 2D | 2D | 2D | 2D | 2D | 2D | 2D | 2D | 2D | 2D | 2D |
| **Pulse Sequence** | SSFSE | SSFP | SSFP | SSFP | FGRE | FSE-IR | FAST GRE | SPGR | FAST GRE | FSE-IR | FSE-XL |
| **Imaging Options** | EDR, SEQ, FAST, SS, ARC | Card Gate, SEQ, EDR, Fast, ZIP512, ASSET | Card Gate, ASSET, SEQ, FAST | Card Gate, ASSET, SEQ, FAST | Card Gate, EDR, Fast, Mph, ASSET, SrP, MOCO | GAT, SEQ, FAST, ASSET, IrP | Card Gate, FAST, IrP | Card Gate, EDR FAST, PS, IrP, ASSET | Card Gate, EDR, ARC, PS, IrP | Card Gate, SEQ, ZIP512, BSP, FAST, ASSET | Card Gate, SEQ, BSP, FAST, ASSET |

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**MR Gadopiclenol (VUEWAY®) Protocol for GE HealthCare Systems**
**MR Angiography**

IMAGING FORUMS, INC.

**SCAN PARAMETERS**

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|---|---|---|---|---|---|---|---|---|---|---|---|
| **TE** | 90 | Min | Min | Min | Min-Full | Min-Full | Min | Min-Full | Min | 36 | 102 |
| **TR** | 1000 | Def (4.6) | Def (4.6) | Def (4.6) | Def | Def (4.4) | Def (6.1) | Def | Def (6.1) | Def | Def |
| **TI** | — | — | — | — | 188 | — | TI 200-300 PRN | TI 200-300 PRN | TI 200-300 PRN | BSP TI Auto | BSP TI Auto<br>Inv TI Auto |
| **Flip Angle** | — | 50 | 50 | 50 | 25 | 5 | 20 | 20 | 20 | — | — |
| **ETL** | — | — | — | — | — | — | — | — | — | 32 | 24 |
| **Bandwidth** | 83 | 125 | 125 | 125 | 83 | 83 | 50 | 62 | 50 | 62 | 62 |

**ACQUISITION PARAMETERS**

| Scan Description | 3PL LOCALIZER | AXIAL Gated CINE | SA OBLIQUE Gated CINE | LA OBLIQUE Gated CINE | Optional: OBLIQUE Short Axis Perfusion | OBLIQUE 2D CINE IR | OBLIQUE Viability | OBLIQUE SSh Phase Sensitive Viability | OBLIQUE Phase Sensitive Viability | Optional: OBLIQUE Double IR Gated T1 | Optional: OBLIQUE Double IR Gated T2 Fat |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **MATRIX freq** | 288 | 224 | 224 | 224 | 140 | 128 | 192 | 156 | 224 | 256 | 256 |
| **MATRIX phase** | 160 | 224 | 224 | 224 | 140 | 80 | 192 | 140 | 192 | 224 | 224 |
| **NEX** | 1 | 1 | 1 | 1 | 0.5 | 1 | 1 | 1 | 1 | 1 | 1 |
| **Phase FOV** | 1 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 1 | 1 | 1 | 1 | 1 |
| **Freq Direction** | Unswapped | — | — | — | — | Unswapped | — | — | — | — | — |
| **Accel** | Ph 2 | Ph 1 | Ph 1 | Ph 1 | Ph 2 | Ph 1.5 | Ph 2 | Ph 2 | Ph 1.5, Sl 1 | Ph 2 | Ph 2 |
| **Adv CV** | — | Arryth Rej 0 | Arryth Rej 0 | Arryth Rej 0 | 60 Phases (adjust to keep 1 min scan time) | IR Prep Pulse 1 Enhanced | — | IR Prep Pulse 1 Enhanced | IR Prep Pulse 1 Enhanced | Clc Ann 1 | Clc Ann 1 |
| **Cardiac** | — | Arryth Rej Wn 10<br>Delay Min<br>VPS 16<br># Phases Recon 20 | Arryth Rej Wn 10<br>Delay Min<br>VPS 16<br># Phases Recon 20 | Arryth Rej Wn 10<br>Delay Min<br>VPS 16<br># Phases Recon 20 | #RR 1<br>Trigg Wind 20<br>Trigg Delay Rec | HR <80 1RR<br>HR=>80 2RR<br>Trigg Wind 30<br>Trigg Delay Rec<br>VPS 8<br># Phases Recon Auto | HR <80 1RR<br>HR =>80 2RR<br>Trigg Wind per Chart<br>Trigg Delay per Chart<br>VPS per Chart | RR 2<br>Trigg Wind 10<br>Trigg Delay Rec | RR 2<br>Trigg Wind 10<br>Trigg Delay Rec | #RR 2<br>Trigg Wind 10<br>Trigg Delay Min VPS 8 | #RR 2<br>Trigg Wind 10<br>Trigg Delay Min VPS 8 |

**SCANNING RANGE**

| Scan Description | 3PL LOCALIZER | AXIAL Gated CINE | SA OBLIQUE Gated CINE | LA OBLIQUE Gated CINE | Optional: OBLIQUE Short Axis Perfusion | OBLIQUE 2D CINE IR | OBLIQUE Viability | OBLIQUE SSh Phase Sensitive Viability | OBLIQUE Phase Sensitive Viability | Optional: OBLIQUE Double IR Gated T1 | Optional: OBLIQUE Double IR Gated T2 Fat |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **FOV** | 40 | 40 | 40 | 40 | 36 | 40 | 40 | 40 | 40 | 36 | 36 |
| **Slice Thickness** | 8 | 7 | 7 | 7 | 8 | 10 | 7 | 7 | 7 | 6 (If coronary evaluation 5/0) | 6 |
| **Spacing** | 0 | 2 | 2 | 2 | 10 | 0 | 2 | 2 | 2 | 1 | 1 |
| **Number of Slices** | 5-8 each Plane | Variable - see comments above | 15-18 | 3 | 3-5 | 1 | 15-20 | 15-20 | 15-20 | Variable | Variable |
| **Approx Scan Time** | 23 sec per BH, 0:46 | ± 8-15 sec per BH gating dependent | ± 8-15 sec per BH gating dependent | ± 8-15 sec per BH gating dependent | 1:00 | ± 8-15 sec per BH gating dependent | ± 8-15 sec per BH gating dependent | ± 20-35 sec for full SA Stack gating dependent | ± 8-15 sec per BH gating dependent | ± 8-15 sec per BH gating dependent | ± 8-15 sec per BH gating dependent |

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